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OF
INDUSTRIAL MANAGEMENT**

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FINANCIAL ASPECTS OF INDUSTRIAL MANAGEMENT

By

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PREFACE

THE object of this work is to assist those who seek a closer acquaintance with the financial aspect of industrial management.

The opening chapters introduce those principles of industrial management—concerned with organization, process study and work-study—upon the proper application of which the attainment of satisfactory results depends.

Consideration of work measurement as a function of work-study naturally leads to a survey of the principles of incentives, job evaluation, merit rating and more general aspects of industrial relations. Then follow the principles of management accounting, because work-study and management accounting are complementary.

Work measurement serves standard costing, budgetary control and productivity assessment, whilst management accounting high-lights those industrial activities to which work study techniques may be profitably applied in order to improve organizational and operational efficiency.

Management accounting which places the accent on control and service to management is not, however, divorced from ordinary financial accounting. Both are essentially parts of the controllership function which is also responsible for the financial structure and includes the administration of financial policy.

A sound financial policy is an essential basis for profitable industry—profitable, that is, to those who work in it, to those who invest in it and to the community at large which is the main beneficiary in its products and profits.

The author wishes to express his indebtedness to many pioneers in the wide field covered by this work and to the staff of Butterworth's, the publishers, for their guidance and ready co-operation throughout. He also thanks his wife and son for their encouragement and patience over a long period.

G. D. B.

BIRMINGHAM.

October, 1954.

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PART I

**PRINCIPLES OF
INDUSTRIAL ORGANIZATION**

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CHAPTER 1

OUTPUT AND PRODUCTIVITY

OUR industrial system exists primarily for the purpose of satisfying human needs of a material nature in maximum quantity and to an acceptable standard of quality, with the minimum use of real resources. These requirements cannot be met in sufficient quantity or diversity, or as economically, from production by individual effort alone. Accordingly, whilst industrial activities are to some extent in the hands of individuals and partnerships, we live largely within a framework of corporate activity. Private enterprise through the joint-stock company concentrates individual savings and converts them into creative economic tools for use in increasingly specialized processes leading to greater national production and a higher rate of productivity. Maximum output is possible only from the full use of resources without avoidable wastage, and costs per unit of output tend to a minimum when this condition spreads the cost of fixed resources to the greatest possible extent. Idleness and wastage are, indeed, the constant enemies of good management.

A higher rate of productivity, implying greater efficiency in the use of existing resources, is essential for the maintenance of our living standards in an increasingly competitive world economy, especially as payment for essential imports of food and raw material for domestic use has to be made from the proceeds of substantial exports of industrial products. Any appreciable improvement in living standards depends entirely upon the achievement of greater national output, which, in turn, requires wise direction, intelligent management and effective work, with a ready acceptance to change on the part of management and men, the maximum concentration of man-power in production, greater application of existing "know how", more attention to ensuring smooth work-flow, the application of much more "horse-power" per worker than serves industry at present and continuous technological development; but, as industry grows to be more mechanized and specialized we must not lose the human touch. The genuine interest of suppliers in the end-products of manufacturers and the practical expression of their integrity by keeping delivery promises are also important factors in obtaining higher productivity by reason of the improved inter-company work-flow thus secured.

Sound industrial relations are the essential basis of achievement and depend primarily upon an enlightened management which provides the right working environment and conditions, with the realization by all concerned that whilst everyone is entitled to a fair day's pay, each has a corresponding duty to do a fair day's work. The trades union movement needs to play a positive part in actively seeking the elimination of individual restraint and restrictive practices of

all kinds, so that increased remuneration can follow higher rates of productivity rather than serve merely as an uncontrollable impetus to inflation and the inherent inefficiencies which supervene. People need to identify themselves more closely with the interests of the firm which employs their services and, by stimulating competitive activity, invigorate the general climate of industrial endeavour. Everyone should realize that individual well-being on a general scale is entirely dependent on national prosperity. The need for greater productivity is not confined to industry, but extends also to government and commerce, for resources employed uneconomically or inefficiently in any field of the national economy can do nothing except add to the dead-weight of industrial costs and dilute our competitive power as a nation. High statesmanship, supported by efficient direction and management in industry, is indeed essential for the solution of the super-priority task of harnessing nature so that we may improve our place in the world and obtain a higher standard of living for all to enjoy. The development of increasing rates of productivity is necessarily linked with the expansion of effective demand through widening markets in order to ensure the income and therefore the capital for further progress.

The corporate body under private enterprise can justify its continued existence as the principal means of improving general living standards and of ensuring a fuller life for all only by sharing with its customers and employees alike the benefits derived from improved organization, technology and cost savings, whilst ensuring to each investor not only a fair return for risks undertaken, but, also, the maintenance without impairment of the physical worth of the corporate assets. The need for enterprise and efficiency in the direction and management of industry is indeed clear and beyond doubt when we consider that these requirements have to be met in a world of tension, change, restrictions and regulations, where unexpected happenings are accepted as normal and in a country where the government takes too great a share of the profits of industry for revenue purposes.

Practical problems which arise are subject to manifold influences, according to industry, locality, economic conditions and the domestic circumstances of particular firms. Different circumstances apply to the newly established as distinct from the established enterprise. New enterprises may have problems associated with planning restrictions, licences, material supplies, man-power shortages, the risk of rising prices during the progress of constructional work, and, not least, the organizational problem of building up an efficient working unit of activity. On the other hand, the new enterprise has the advantage of securing a modern plant with adequate facilities for expansion, an ideal layout for controlled work-flow and the absence of the retarding influence of old-established habits. The established firm may be and often is handicapped with old-fashioned plant, limitations to the improvement of work-flow, and inefficient, but firmly entrenched, habits of procedure.

Industrial efficiency depends also on the continued validity of the company's objectives and the effectiveness of the policies, organizational

structure, processes, methods and procedures concerned with their attainment. The establishment and maintenance of a co-ordinated plan for the control of operations is also requisite to ensure satisfactory financial results, to measure performance against approved programmes and standards and to provide protection for the company's assets. Unremitting control is the keynote to profitable industry, for without it the practical expression of policies, however appropriate their conception, cannot be guaranteed, even within the limits imposed by the daily hazards of a changing economic climate. The wartime excess-profits tax, which encouraged waste and extravagance, and the inflationary markets of the post-war world, which allowed errors of management and working inefficiencies to go unchecked, undoubtedly disguised the need in our increasingly competitive world to ensure the application of unflinching control, which is so vital to the achievement of competitive costings which help to ensure sales.

CHAPTER 2

THE ORGANIZATION STRUCTURE

The Directorate

SUCCESS and failure in corporate business formally begins in the board room, as it is the function of the directors in their collective capacity as a board to determine, direct and control the general policies to be carried out by the company's officers, although, as mentioned later, policy-making, especially over details, occurs also at lower levels. In this process it is important to ensure that policies are based on sound business principles which are never ignored ; for example, a policy should not be adopted which commits the company to over-trading, or gambling in raw material markets or undertaking activities for which neither its executives nor its resources are completely suited. The directorate has a duty not only to provide adequate incentives for investment and to reward and safeguard shareholders ; but has, also, the over-riding social responsibility of fulfilling a definite economic want in the production of goods of adequate quality at the lowest possible price, of furthering the maintenance of a national policy of full employment whilst adequately rewarding each employee in proper relation to his services, of making the best use of all natural and economic resources employed and of ensuring that local amenities are in no way impaired.

The mixed board composed of part-time directors of wide business experience allied with executive directors employed full-time in close touch with, but not immersed in, the daily operation of the business, has the advantages of widening the viewpoint of the inside directors, and of avoiding the danger of entirely separating policy-making from executive responsibility, whilst ensuring that domestic problems are neither overlooked nor played-down by the policy-makers. "Outside" directors may be regarded as being in the position of special trustees serving the interests not only of shareholders, but also of employees, customers, and indeed the public at large. Being independent of the company for their livelihood, they serve also to guard the chairman or the managing director against his own mistakes. "Outside" directors need not be able to outvote executive directors in order to make their presence felt, because reputable companies dislike the publicity which follows when respected directors resign as the result of dissension at board level. "Outside" directors may use their influence to activate or moderate their colleagues on the board as may be required in the best interests of the company. It is, of course, proper for them to exercise a restraining influence on executive members whenever they consider that circumstances justify this course. Unfortunately, no such desirable brake is applicable to the inside board on which higher executives serve as a policy-making body

whose decisions may tend to become parochialized and thus fail to take a sufficiently broad and detached view of particular issues.

“Inside” directors are usually appointed to the mixed board from the ranks of senior executives and functional advisors and, although owing loyalty to the managing director in their executive capacity, have, at all times, an over-riding loyalty to the company. They should never confuse their offices by falling into the error of assuming that their director status attaches to them in their executive capacity. No serious conflict of loyalty should arise provided there exists a common aim to make correct decisions in the real interests of the company and not to promote sectional interests, notwithstanding the occasional emergence of natural differences of opinion. As teamwork at board level, or any other level for that matter, is possible only on the basis of mutual confidence and trust and as any disunity or fundamental conflict of interest there can do considerable harm, the chairman needs to be sufficiently wise and discerning to take appropriate measures before disunity arises which is reflected at lower levels.

The board should be governed by the principle of collective responsibility, in the fulfilment of which each director should do his best to persuade his colleagues to determine the policy which he considers is likely to be the most satisfactory for the company ; but he should give his full support to decisions taken, for any apparent differences which persist at this level can do incalculable harm lower down. The dissentient director who cannot give the policy his full support should resign. In order to preserve board solidarity and avoid any disturbing schism, individual directors should not in their capacity as members of the board circulate memoranda regarding policy to their colleagues on the board otherwise than through or with the approval of the chairman. Directors clearly have no executive authority in their capacity as directors, and it is, therefore, not for them to issue instructions to heads of departments, let alone those at lower levels. Moreover, it is essential that the chairman should not exercise executive authority.

The dual appointment of chairman and managing director should generally be avoided, for it is desirable particularly in the case of a public company that the chairman should retain an impartial position free from executive responsibilities. Moreover, a board should always be in a position to make any managerial changes considered necessary in the interests of the company without regard to personalities. The dual appointment of chairman and managing director may under adverse circumstances militate against the interests of the company. Likewise, joint managing directorships are usually undesirable, except where each is independently concerned with a separate business of the company for which he is answerable to the same board, because executive responsibility which is divided not only gives rise to misunderstanding, complicates the process of co-ordination and encourages the growth of internal politics, but also negates the basic principle of individual executive responsibility. Rather than to divide and misrule, it is preferable to face the initial problem, delicate though it may appear to be, which gives rise to the situation.

Normally, the board should clearly reserve to itself the determination and control of :

- (1) general personnel policy and the appointment, remuneration and terms of reference of senior executives and functional advisors ;
- (2) general financial policies, viz. :
 - (a) investment powers ;
 - (b) provision of finance ;
 - (c) authorization of expenditure on the basis of budgets covering research and development, operations, and capital expenditure on new projects and on replacements. Global authority should be delegated within limits for any scheme of capital expenditure which is complete in itself.
- (3) competitive policies and the making of competitive arrangements ;
- (4) the authorization of new activities or the cessation of existing ones ;
- (5) the taking of legal proceedings.

The board also needs to ensure that a sound organization structure is created and maintained which is capable of providing effective co-ordination and satisfactory personnel relations ; that a single chief executive is responsible to the board for the interpretation of its policies into effective executive action ; and that continuity in the organization is assured by the provision of executive training facilities. It is essential to have a definite chain of command which links all ranks so that no one receives orders from more than one source.

The Chief Executive

Directors as such have no power of executive action. Accordingly, in their corporate capacity as a board they give policy instructions by means of minutes to the chief executive, who is usually entitled managing director or general manager. He initiates all orders to implement their policy and is responsible to the board for the proper execution of all the affairs of the company by a process of co-ordinated delegation through all other ranks of the organization.

The chief executive needs to have the ability to form a balanced judgment of the total situation and the invaluable quality of decision. He should inspire confidence, create enthusiasm and appreciate the importance of going " big ". He should be forward-looking, with a progressive outlook in finding new ways and be resolute in attaining his objective in spite of all obstacles to progress. He must be successful in his choice of subordinates. Moreover, he should be competent to assess an evolving situation and evaluate performance. He should never overlook the fact that the final responsibility for the efficiency of all managerial and operational activities is his, that he sets the tone of the organization and that his effectiveness is proportional to his ability to delegate responsibility and maintain harmonious relationships with employees, customers and associated bodies.

Industrial achievement requires action allied with a complete under-

standing and acceptance of the objective, a detailed plan of attainment, adequate and balanced physical resources, sufficient competent manpower, and a simple, practical and flexible organization which guarantees complete control and ensures that unforeseen circumstances do not dictate executive action.

The successful formulation and attainment of the objective requires not only that the chief executive should analyse, organize, delegate, motivate and supervise ; but also that he should ensure “ productivity consciousness ” becomes a habit of mind which permeates all ranks so that the need for higher productivity is axiomatically accepted and its achievement is actively pursued. The successful administrator harmonizes the interests of the company with those of its employees, and in so doing he stimulates and maintains co-operative activity in securing his objectives and in this process he naturally commands a power unattainable by personal effort alone. The assumption should always be acted upon that a better way exists of doing each job, and there should also be an obvious willingness to introduce new methods which increase output or reduce costs without detriment to the safety and well-being of the worker. The chief executive who approaches problems with a real sense of human understanding not only inspires confidence, but gets results which surpass by far those possible from the display of a mere veneer of business acumen and astuteness.

Success requires that the common objective should not be violated. Therefore, there should be neither vagueness about objectives which can result only in uncertainty, complexity and waste, nor any weakening of the managerial structure from the emergence of internal objectives which are inimical to the main objective, as when personal considerations are placed before and allowed to conflict with the general interest. Qualities of leadership are not confined to the chief executive. He recognizes the natural tendency of others working in close association to react upon one another emotionally, but if he is wise ensures that serious consequences do not emerge, or that disputes which arise do not develop far. However, if the team spirit is broken, remedial action must be taken before effective management is possible. Effective action requires wisdom, fair dealing and sound judgment on his part. Continual vigilance should be exercised because the growth of internal politics is usually a covert affair which is not readily perceptible and serious inefficiency is probable unless remedial action is quickly taken when the need manifests itself.

Industrial achievement is largely related to the ability of managers to seek, secure and maintain the co-operation of all concerned in the ready acceptance of managerial decisions. Success is sighted when the objective is clear, unambiguous and embraced by all concerned and when the means for its attainment are properly understood and regarded as being reasonably necessary for their purpose. Real co-operation requires effective working with one's superiors, subordinates and equals. This requires that each person knows and acknowledges through his actions his place in the team and his relationships with others. Therefore, the chief executive has not only to ensure the

unification of the work of his immediate assistants, but also effective co-operation through and at all levels. He seeks, if he is wise, the co-operation of his immediate assistants—the commercial manager, the technical manager, the works manager, the secretary-comptroller, etc.—in interpreting the policy of the board. Each in turn acts as a further interpreter of policy with his immediate assistants, and so on down the line, for obviously we lose what we might learn from the man on the job if we do not get his co-operation. Policy interpretation gradually attenuates as operational activity expands with deeds replacing words. In the reverse process, policy proposals are being continually “escalated”; but it is only policy matters of principle and major importance which are presented by the chief executive for the considered decision of the board. There is accordingly at all levels a continuous process of thought, decision, interpretation and action through a series of inter-linked teams of associates.

Co-operation between equals naturally requires a complete absence of self-interest and a greater degree of self-discipline than does co-operation between those in line of authority. Any appearance of equals in positions of high authority “jockeying for position” should be eradicated, because nothing does so much harm in upsetting general morale and in generating friction. It is not sufficient for the members of each team to work together, for maximum results are possible only when all units naturally interlock into an effective striking force through unselfish co-operative endeavour in the attainment of overall objectives.

It is important to approach problems which emerge with an open mind and to take an overall, objective and balanced view, with a willingness to make any change necessary in the interests of the company to secure improvement. Direct action is usually advisable when resistance to change is impelled by personal fears induced, perhaps, by the need to cover personal inabilities, lack of knowledge, or the inefficiencies of outmoded or unsound methods. It cannot be over-emphasized that failure to take corrective action can seriously dilute morale by causing friction and a sense of frustration. A stubborn inertia is often exhibited to prospective changes towards which even senior executives sometimes take a rather biased and parochial view. The formation of a small organization and methods section designed to promote technical and administrative improvements through the application of recognized work-study techniques and to make periodical efficiency audits provides a means of overcoming resistance to change and an economical means of ensuring that financial savings are obtained whenever possible by the adoption of improvements.

Internal publicity is too often neglected as a means of helping to secure co-operation and a ready acceptance of the need for greater production from existing resources. For industrial progress makes it necessary to secure the ready acceptance of improved methods and to overcome conservative attitudes of mind induced by a natural reluctance to change or by personal fears which date back to past years of bitter industrial experience. A works information service should be

arranged to convey ideas, information and opinions throughout the organization, without bias or undue influence, because in the absence of reliable information from management, the tendency is for speculation and rumour to arise which distort and reduce the effectiveness of managerial intentions.

Manning the Organization

Effective manning depends primarily upon attracting and retaining the services of the right people. Well-planned arrangements for their recruitment are necessary, supported with the offer of adequate remuneration ; good working conditions and, where required, realistic training facilities. The physical maintenance of all employees must be secured by a sincere regard for their welfare, for time and effort devoted to looking after people is usually rewarding. Important assets to physical wellbeing are well-managed canteens, health and welfare services. Morale must be maintained at a high level through the human understanding and fair dealing of supervisors who succeed in inculcating in each man a feeling of security and a sense of pride and dignity towards his work. For high morale is reflected in the obvious contentment and satisfaction of all ranks in realizing the need for their contribution and in appreciating their significance in the team. High morale which eliminates frustration depends upon a clearly defined and acceptable policy interpreted with understanding and goodwill through a chain of responsibility, free from misfits, in which the span of responsibility at each level is kept within personal capacities, without, however, a significant excess of unused ability. Vagueness, indecision, confusion and misunderstanding must be avoided if benefits are to be realized through the most effective use of abilities.

The selection of suitable people who are matched physically and mentally to their jobs without any excess of unused capacity to cause frustration is a condition precedent to the achievement of greater productivity. For undoubtedly the greatest asset any business can have is a well-selected, efficient and willing body of employees. Inefficient selection is expensive, because it is invariably reflected in occupational misfits who are specially prone to accident, absenteeism and unrest. It is common knowledge that worry and strain come from being in the wrong job and create unnecessary stress and strain in the working environment which dilute output and increase costs.

Employment selection and placement requires specialized skill and experience and a natural aptitude for the function, the truth of which becomes apparent in reflecting upon the difficulty of determining temperamental traits during a brief acquaintanceship. Effective placement requires a correct knowledge of the job in terms of its demands upon the individual and a correct assessment of the candidate accordingly. All possible sources of recruitment⁺ should be carefully studied and links established with sources of intake, even to the extent of maintaining prospect files. Intake requirements should be anticipated as far as possible in order that appointments may be made without avoidable delays in filling vacancies.

As first impressions gained by prospective entrants are important, adequate facilities should be provided for their proper reception. The employment interviewer has to acquire the art of getting at the truth in assessing all the factors which make up character, in perceiving personalities and in penetrating disguises. One needs to realize that as testimonial writing tends to develop the art of omitting awkward points, what is omitted may also be informative.

The rating scale provides an aid to objectivity in interviewing, enabling one's general impression of a candidate to be analysed with special attention to the qualities required for satisfactory performance of the job. The seven-point plan of the Institute of Industrial Psychology includes about thirty questions concerning physical qualities, attainments, general intelligence, special abilities, interest, disposition and circumstances. For example, under the first heading may be enquired the extent to which the job imposes any standards of health, physique, appearance, speech or bearing. Not only does the rating scale assess the make-up of the individual, but it also allows objective comparison to be made of candidates and to develop standards of judgment. In some cases, too, the use of various psychological tests improves the accuracy of initial selection.

A close and patient study of people is required to ensure that jobs are properly related to aptitudes ; for example, it is a fact that the task which may be routine monotony to one person is acceptable to another. In making appointments, it is important to ensure the maintenance of good industrial relations, and in order to encourage the right supervisory attitude each supervisor should have the final say in the selection of his assistants, provided they conform to company standards, unless a reasoned decision is given him to the contrary. It is clearly a mistake to lower the status of supervisory staffs, particularly foremen, through " side-tracking " them in matters of labour relations. Indeed, nothing should be allowed to violate unity of command at the working point. In particular, the foreman's functions should not be diluted by the intrusion of specialists to such an extent that his effectiveness to meet his responsibilities is impaired by multiple influences on the line organization.

The interests of general morale require maximum promotion from within and selective recruitment from outside. The same interests require that the selection of candidates for promotion should be made impartially and entirely for the benefit of the company, without the incidence of favouritism or nepotism. In order to maintain morale in the rank and file, excellence of present performance or the difficulty of replacement should not bar promotion. This should depend entirely on proved merit. Any tendency exhibited by departmental managers to regard their departments as self-contained organizations from which rights of promotion into positions of greater authority and importance in the company is denied should be curbed. Particular care is desirable in filling higher appointments from outside candidates, for whilst the occasional influx of newcomers may enliven the organization, benefits will not accrue if justifiable feelings of resentment are raised in the minds of staff.

It is important that new entrants should start with the right attitude towards the company, their colleagues and their work. Accordingly, they should be properly received and instructed through the operation of realistic induction training schemes designed to cover all relevant information about the company, the people in it and the job. An important proviso is that the persons who do the training should be skilled in instructing others. The Ministry of Labour Scheme of Training within Industry is invaluable as a means of developing in supervisors the necessary skill in giving instructions to workers.

Experience proves that many advantages accrue to both the company and its employees when proper attention is given to training, for maximum performance cannot be obtained when faulty methods of work are acquired by scant instruction or simply watching others do the job. In particular, ingrained faults are not easily eradicated. Adequate training courses for promotable employees serve to strengthen the organization by guarding against a high turnover of the better workers. For special aptitudes need encouragement just as special abilities need freedom for their expression. Incidentally, there is urgent need in the national interest of securing higher productivity to review existing apprenticeship arrangements, not only to enable people to become skilled more quickly than at present, but also to permit older employees who have demonstrated this potential ability to be accepted as craft apprentices. Courses for executive development need to be encouraged in order to ensure an adequate supply of persons who possess the necessary ability, capacity and expertness for managerial assignments at each level as the need arises. In particular, no opportunity should be lost to instil a sense of responsibility and urgency into the minds of the more junior levels of management.

The preparation, as a basis of training activities, of handbooks on the company's standard practices is not only time saving in the long run, but promotes increased productivity by encouraging suggestions for improvements and economy in methods of working. It is, however, important to realize in compiling handbooks of this kind that regulations which do not emerge from job demands, but merely for the sake of procedure, do nothing except frustrate those who are trying to do their work. Nor is it sufficient merely to establish rules and instructions, because people like to know the reasons behind them. Explanation also enables those who are not so intelligent to understand their necessity.

It is important to ensure the maintenance of satisfactory earnings by regularly reviewing the remuneration of all employees on the basis of their performance and by giving appropriate rewards where merited. Rates of remunerations should preferably be based on systematic job evaluation and merit rating or performance rather than be fixed in an arbitrary or impersonal manner. A periodical review of remuneration provides the occasion for constructive discussion of the work of each one and for marking out prospective candidates for promotion. A regular review of each employee rather than an annual one of all employees avoids concentrating too much attention on the process and avoids a natural reaction arising from the tension usually generated.

Adequate consideration should be given to other benefits of a “ fringe ” nature, such as the provision of superannuation schemes to provide for retirement, of sickness and benevolent funds to avoid periods of financial hardship, and of welfare and recreational facilities in order to ensure physical maintenance. The promotion of official savings schemes not only promotes thrift among employees, but also protects them against the possible dishonest activities of unofficial organizers. The importance can hardly be over-emphasized of taking every opportunity to appreciate conspicuous performance at work, for intangible rewards are to some just as important as rewards of a more tangible nature.

The recruitment and training of efficient supervisory staffs is an essential function of effective manning, for unsatisfactory results are likely to arise in the absence of a power of leadership at all levels of management stimulating and sustaining full co-operation, whilst creating a high level of morale evidenced by the happiness of people at work. Job contentment is important, for people spend most of their effective time at work.

The foreman occupies a vital yet often neglected place in management, for to many of his men he is virtually the company. He is at once a member of the group he leads as well as a junior member of the management hierarchy, because upon him devolves not only the duty of correctly interpreting in practical terms the policies of management and persuasively emphasizing objectives ; but, also, of conveying upwards the sensibilities, needs and legitimate aspirations of workers. The foreman provides the vital link, at the practical level, in the essential job of getting output, maintaining quality, ensuring safe working, avoiding waste and securing complete co-ordination of resources, in the process of which he needs to exercise organizing ability and seek the co-operation of others in making full use of functional services. He needs not only to know the capabilities of each machine and tool ; but, above all, to have a clear insight into the character, personality and ability of each of his men. He must be sensitive at all times to the atmosphere of the shop and remain for ever loyal to his superiors as well as to his subordinates, without in any way currying favour with either. Not least, he needs the ability to give orders clearly, concisely and without ambiguity, yet pleasantly and with a reasoned approach whenever necessary. His, too, is the task of maintaining discipline, preferably by willing consent, for misdemeanours such as lateness, wastefulness, carelessness and neglect of safety precautions are unfortunately contagious in their incidence.

Consideration of the foremanship specification, requiring as it does qualities of leadership and organizing ability, with practical knowledge of particular techniques, leaves no doubt that considerable care and attention should be exercised in the recruitment, induction and training of foremen. A similar position clearly arises in respect of other supervisory appointments, not least in the selection of chargehands, who are, in effect, foremen in training. Conditions of service should be adequate to the status of supervisory staffs, whose remuneration should be clearly related to the demands made upon them. A new conception

of the foremanship function is needed on the part of many managements, for labour cannot be expected to respond unless effectively led.

Industrial justice no less than social justice is essential in securing personal loyalties and a sense of comradeship to bring maximum results from the efficient recruitment and deployment of man-power. Disputes should invariably be settled promptly, by a process of "laddering up", whereby conflicts between colleagues at any particular level are referred to their immediate superior for settlement. The absence of any established judicial system in industry places a special duty on management to ensure that everyone has ample opportunity to present his side of the case. Secret reports or "pre-judicial statements" have no place in responsible management, and an obvious sense of fair play is displayed when the contents of detrimental reports on subordinates made to superior authority are disclosed to those criticized. Likewise it is wrong to criticize subordinates in the presence of others. Whilst it is essential to overcome laziness, resort should be made only finally to the basic instinct of fear. It is important to encourage a feeling of security in the minds of employees by restricting discharges, so that supervisory powers of dismissal are restricted to the team, with a right of appeal to the personnel officer to avoid victimization and assure fair play. The longer the length of service, the higher should be the confirmatory authority required to make effective proposals for company dismissal.

A useful practice is to review establishments according to the age and length of service of employees in relation to leavers during the year, so disclosing any departmental variations which prompt policy adjustments for their correction. Policy revision is indicated where there is a steady or declining turnover index with mounting rates of remuneration. Any sudden rise or fall in the turnover index of a section or department needs diagnosis and correction and the interpretation of a changing index may be assisted by making an exit-interview analysis of reasons for leaving. In order to ensure as far as possible the accuracy of the record, employees should not normally cease their employment without an interview with the personnel officer, for with sympathetic and friendly treatment the real reasons for leaving can usually be obtained and these often differ widely from the official reason submitted by supervisors. A low index of labour turnover is not necessarily an index of good management. In an inefficient firm, turnover may be low because simple jobs are in the hands of employees who regard themselves as being in "Easy Street", whereas a high turnover rate may reflect the praiseworthy ambition of those who have left.

Span of Responsibility

Effective management depends upon each man knowing his job and his place in relation to others in the organization. It is axiomatic that each person knows to whom and for what he is responsible and it has always been the case that no man can serve two masters. The working group with a clearly defined job in which each member knows what is expected of him and can see his contribution is an essential basis of achievement. As authority to act and responsibility to be called into

account are complementary, responsibilities should be defined and the span of responsibility kept within personal capacities in exercising control and ensuring co-operation through daily contacts. Experience shows that a man who is assigned responsibility for which he is not answerable to some other person or body usually tends to exercise it with decreasing efficiency.

Delegation is essential for effective action at the working point. Each person to whom a measure of responsibility is delegated should have sufficient authority to enable him to require effective action from those under his control, for it is unreasonable to expect a man to succeed in a task in regard to which he does not possess the authority necessary for successful achievement. However, each person who delegates responsibility is not relieved of his own responsibility for ensuring that the activity with which he is concerned is efficiently undertaken, and he remains accountable to higher authority for all the actions of his subordinates which are within the scope of their actual or implied authority, whether or not he has issued specific instructions to them. Responsibility once delegated must not be abrogated or confused by decisions being taken at higher level in respect of matters delegated, because responsibility and authority then cease to be correlated and co-ordination becomes impossible. Nor should responsibilities be changed without informing all concerned.

The object of designing an organizational structure is, ideally, to fit everyone into his correct place and so ensure the economical use of physical and mental energies, to define responsibilities within personal capacities and to provide satisfactory relationships by indicating lines of authority. There is need to provide for "direct relationships" of line personnel and functional advisors respectively; also for inter-line and inter-functional "lateral relationships" as well as for "functional relationships" between line and functional personnel. Administrative economy requires that every opportunity should be taken to shorten lines of communication by appropriately grouping inter-related activities. Under no circumstances should the formal organization structure be designed as a strait-jacket which restricts initiative and causes frustration, because people need a reasonable measure of freedom for expressing their best selves. Clearly an organization chart is no substitute for personalities and, indeed, is effective only to the degree that it is in fact represented by people who exercise the qualities necessary for achievement in their particular sphere of influence. It is most important that the structural format should be interpreted with goodwill and regarded as a guide; but never construed as a means of evading responsibilities.

In compiling an organization chart, recourse may be made to legends for various working groups—one-tier, two-tier, three-tier, etc.—as illustrated in Figures 1 and 2. Whilst the outline organization chart shown for an industrial company is comprehensive in scope and applicable to a large-scale industrial unit, its application to smaller units may be arranged by suitably telescoping various activities according to the requirements of the particular company concerned. However, it is important to appreciate that the inclusion of each

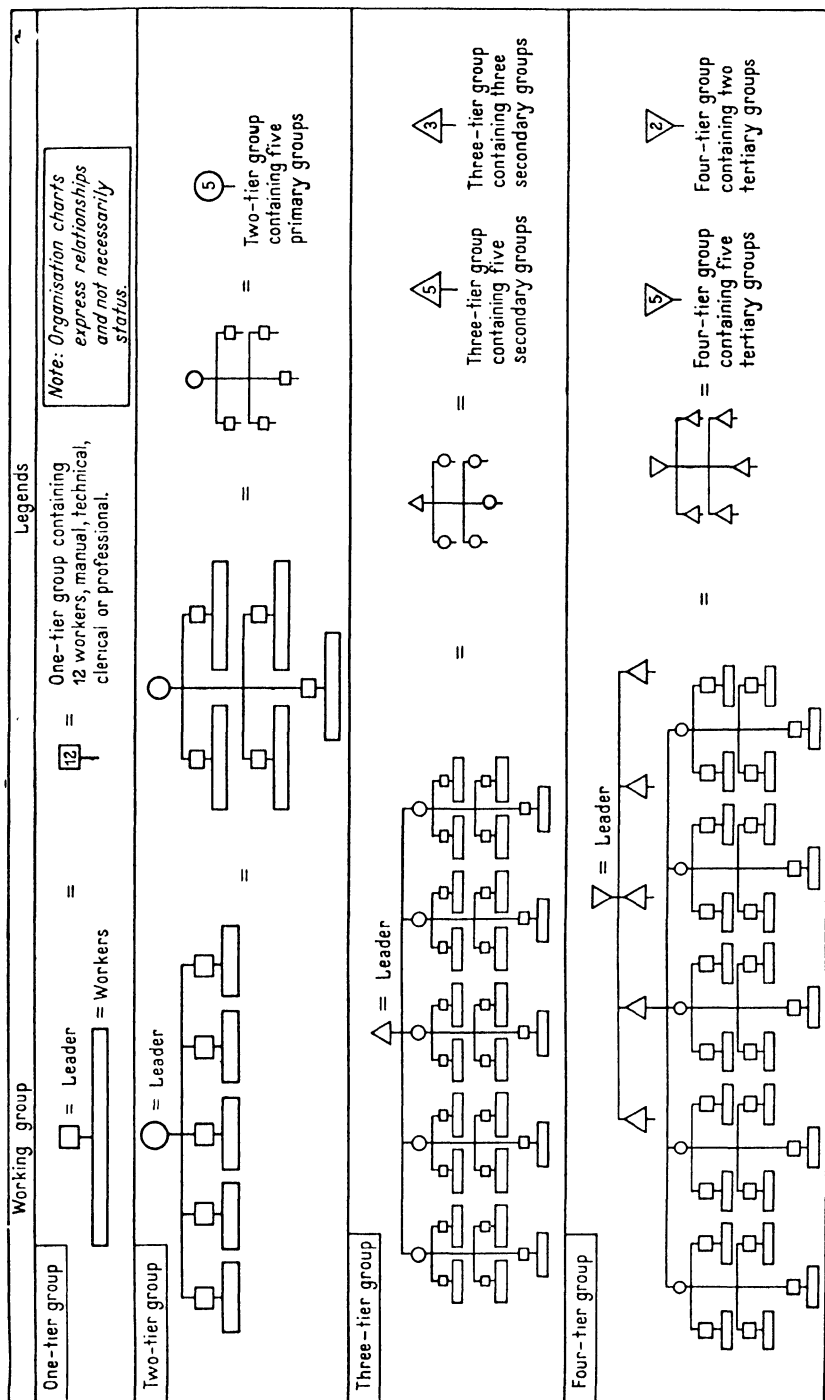


Fig. 1.—Organization Chart.

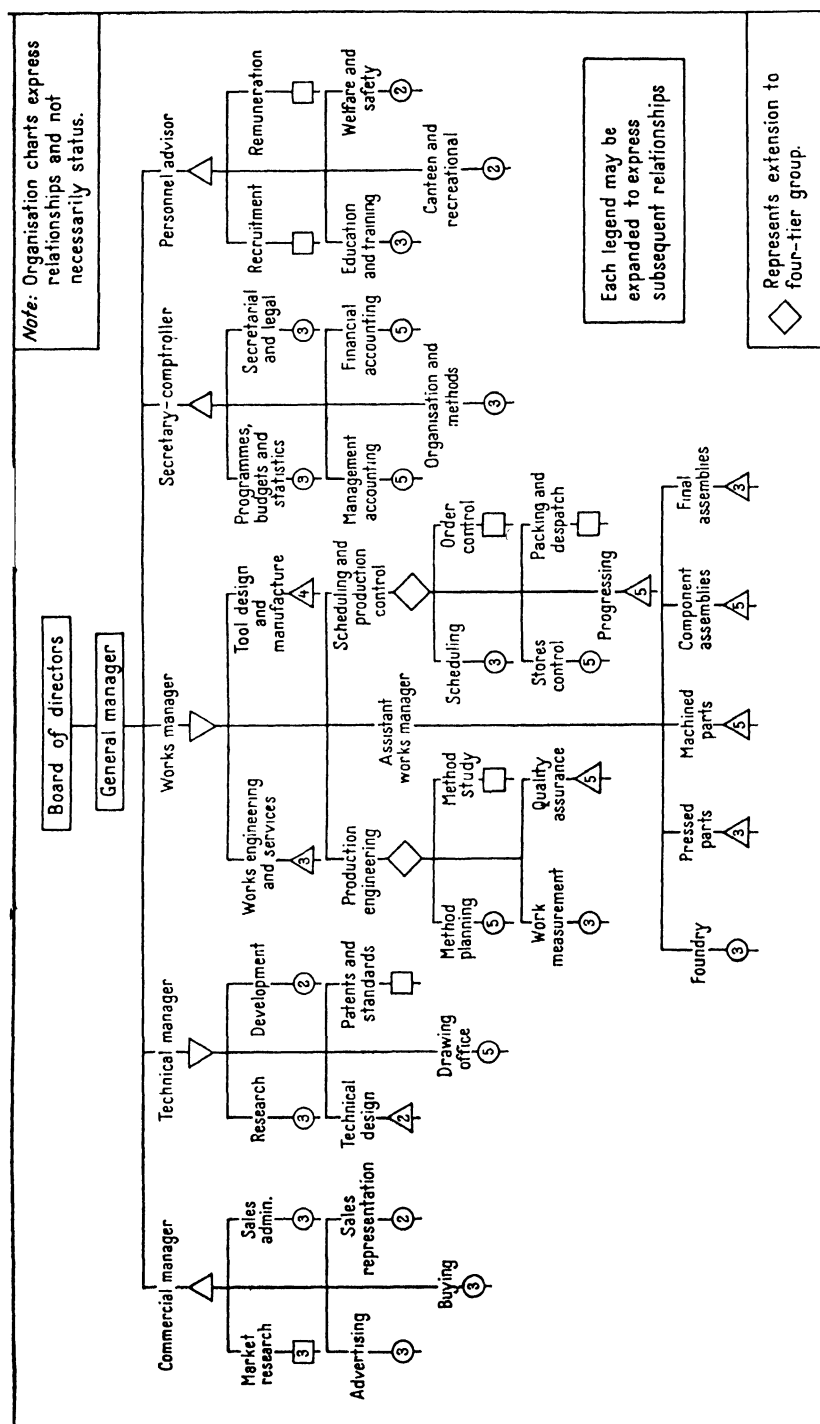


Fig. 2.—Outline Organization Chart for an Industrial Company.

activity merits consideration to a varying degree dependent upon the size and characteristics of the relevant company, in order to ensure that no weaknesses are allowed in the organizational framework which dilute efficiency or retard progress.

The influence of personality on an organization structure is a most important and variable factor to be dealt with in relating the ideal organization of a formal kind to practical considerations in order to evolve a reliable structure which ensures smooth working relationships. Human relationships, being flexible, are not finally expressible in a chart which merely snapshots the functioning of an ever-evolving organization. It is not surprising, therefore, that the formal relationships which prevail among a group of official titles sometimes fail to express the real relationships which exist in practice. Often the case is that the functions exercised by an individual exceed the formal powers of his post, whereas, in other cases, the implications of title exceed expressed authority. Indeed an organization structure cannot be permanent if the undertaking is to become progressively more efficient and effective. Nevertheless, in establishing an organization, the formal structure should be determined before giving any consideration to personalities, for an organization built solely around personalities is inherently unstable. It is equally important in the process of organization planning to take into consideration the changing occupancy of supervisory and functional appointments and not to miss the fact that existing occupants are to a varying extent moulded by their environment and may develop or deteriorate accordingly. Nevertheless, it is important to realize that adjustments made to meet personal considerations without reference to principles, or the general pattern of organization, lead to future difficulties. Although the organization chart represents a passing snap-shot of the staffing situation, which may change fairly rapidly regarding personalities and less frequently in respect of actual jobs, the development of projected organization charts aids the planning of future staffing requirements. In spite of the fact that changing circumstances may upset the forecast of actual jobs which require filling, the projection of such charts at periodical intervals ahead draws attention to the emerging problem of replacement, so that intake and training are stimulated.

The effort of compiling an organization chart is a rewarding exercise which enforces thought on the problem of matching responsibilities with personalities and emphasizes the cardinal principle of personal responsibility in classifying duties and so avoiding overlapping and duplication, by making clear and precise what would otherwise be confusing. Duplication and lack of clarity about responsibilities and relationships are usually frustrating and inevitably lead in due course to inefficiency and friction which do not arise when duties are clearly defined and properly understood. However, the contention that rather different considerations apply to the allocation of responsibilities according to whether their application is to higher or lower ranks is not without force. The personal approach which allocates responsibilities generally rather than particularly recognizes that precise

definition tends to impair initiative and flexibility of action, rather than to secure effective co-operative achievement. For the benefits of co-operative activity are more certain to arise through promoting feelings of inter-dependence than by precisely defining spheres of individual influence. Nevertheless, as the level of general responsibilities decreases, so does greater need arise to more precisely define duties and responsibilities, if delays, misunderstandings and overlapping of work are to be avoided, so that, at the operative routine level, it is usual to prescribe standards of method and performance. Nevertheless, responsibilities should not be too closely defined for the particular circumstances that small duties are overlooked.

Effective management appreciates the importance of a rational organizational structure to teamwork and morale, which ensures that duties are sufficiently defined so that responsibilities are not avoided or internal politics encouraged. The essential criterion for work allocation is undoubtedly that of economic efficiency, leading to specialization, group-homogeneity and the full development and use of capacities, with an over-riding appreciation of the human factors involved, as expressed in terms of job satisfaction and good neighbourliness. Specialization, whether of individual jobs or departments, should not be such that the meaning of the job and its relation to the end-product is obscured, so that a soul-destroying monotony arises which causes dissatisfaction with the job, imperils morale and causes extra expense in the form of additional supervision and more elaborate controls.

Proper delegation requires that those entrusted with executive responsibilities are competent, aware of their duties, informed with the necessary information for successful achievement and are allowed to do their job without unjustified interference. The maintenance of good industrial relations requires that a supervisor should never give orders to another's subordinates or ask him to criticize his superior. The aim in properly delegating work should be to ensure that decisions are made at that level where the person concerned knows more of the whole situation than does anyone else. For when the area of delegated authority is widened so that junior executives and supervisors have a greater power of decision making, those on the spot who are most familiar with the facts of the situation are better enabled to get results by making speedier and more effective decisions. Maturity of relationships between supervisor and supervised can be an important factor in obtaining the full benefits of delegation, when a higher degree of initiative and independence is permitted by the supervisor and exhibited by those supervised.

Authority stems from the needs of the job. Hence, the limits of personal authority are inherent in the particular function or task, as defined by the demands of the job. When people know what their jobs are and have sufficient authority for their effective fulfilment, a responsibility is infused which outpaces management by edict, for the essence of leadership is to secure control of the ever-evolving situation so that the next situation is conditioned rather than imposed. Thus a group power is created through interlocking personal responsibilities,

trouble and difficulty are forestalled and there is no drift from crisis to crisis.

The span of control is not the subject of any arbitrary numerical definition, as it depends primarily upon personal capacities and the complexities of the situation. A general manager is not available the whole of his time for internal duties in giving guidance and exercising control through daily contacts with his executives and, similarly, various supervisors are not fully available to their subordinates, by reason of the time taken in contacts at their own level and with their immediate superior. Any simple arithmetical increase in the number of people controlled clearly increases by geometrical progression the number of inter-relationships which are controlled. Thus the time factor and human nature limit the number of people who can be effectively controlled at each level of authority ; for example, when supervision is concerned with the identical routine operations of a dozen people and is 80 per cent. available, the average time personally available for each person controlled is merely four minutes in each hour. It is generally agreed that the desirable span of control is about five in the case of subordinates whose duties interlock. Where simple independent routine operations of a like nature are concerned, the span of control is obviously greater. The formal limit of span to five in the case of executives whose duties interlock is, however, often exceeded in practice and, in fact, is probably nearer twice this number on the average. There is, indeed, a natural tendency exhibited from within to widen the span on the part of executives for various reasons, such as their genuine interest in every aspect of the job, or perhaps from fear of rivalry, lust of power or lack of trust in subordinates. A similar tendency also manifests itself from below in the search for access as a means of promoting status. Some introspection in this respect would in many cases not be out of place, for the desirable limit of span not only acknowledges the natural limitations of time and ability, but recognizes that it is not in the best interests of managers or supervisors to operate continuously beyond the limits of their natural physical and mental capacities. Some reserve capacity is an essential insurance against organizational as well as individual breakdown.

When chance places people together in a factory, a natural tendency arises for social groupings to form of up to about a dozen people. This number may be regarded as the natural span of control of the working chargehand. Managerial intentions are worthless without effective action on the shop floor, for productivity is ultimately determined by what goes on there, and it is here, too, that most of the practical difficulties of achieving satisfactory output at an economic cost has to be met. Therefore, working groups should be designed rather than emerge as unofficial cliques around self-elected leaders who wield influence without responsibility and disrupt the power of control. For as the natural law is that every action has an equal and opposite reaction, there is need to ensure that the position of the unofficial leader is not strengthened at the expense of a weakening official supervisor.

The achievement of satisfactory results depends upon effective working relationships infusing a spirit of co-operation at and through every level of authority and efficient channels for the communication of intelligence both to and from the working point. Channels of communication need to provide for the clear, direct and expeditious transfer of information, which implies a limit to the number of tiers of authority and requires safeguards against short-circuit through unofficial channels. In making contact beyond the formal lines of responsibility, the person concerned should keep his supervisor informed on matters in respect of which his superior is responsible to higher authority, or as respects any matters which are of a controversial nature, or are the cause of disagreement or which may indicate the need for change in some established policy, or require the advice of the supervisor, or call for his co-operation with others in seeking a solution of an emergent problem.

The number of tiers of authority and the span of control at each level of authority are properly related to the size of an industrial undertaking. In any industrial organization, the ratio of supervisory to non-supervisory employees normally need never exceed about 10 per cent when the tiers of authority are limited to a maximum of five above the operative level and the span of responsibility is similarly limited to five at all levels of authority, except at the lowest level supervising a working group of twelve people. Table 1 illustrates this statement.

TABLE 1

<i>Level of Authority</i>	<i>Factory A</i>		<i>Factory B</i>		<i>Factory C</i>		<i>Factory D</i>	
	<i>Span</i>	<i>Number of Employees</i>	<i>Span</i>	<i>Number of Employees</i>	<i>Span</i>	<i>Number of Employees</i>	<i>Span</i>	<i>Number of Employees</i>
General manager . . .	5	1	5	1	4	1	3	1
Managers							4	3
Superintendents . . .			5	5	5	4	5	12
Foremen	12	5	12	25	5	20	5	60
Chargehands					12	100	12	300
Operatives		60		300		1,200		3,600
Total employees . . .		66		331		1,325		3,976
No. of supervisors . .		6		31		125		376
Percentage supervision .		10%		10.3%		10.4%		10.4%

These empirical results do not indicate that large-scaleness brings any advantage in the way of supervisory expense, although a staffing economy associated with scale may arise to the extent that the proportional expansion of supervisory staff is avoided within certain limits of development.

Co-ordination

True co-ordination integrates and balances human effort to produce continuously smooth, flexible and harmonious teamwork in the attain-

ment of company objectives. It requires continuous two-way communication so that those concerned in any task are mutually informed of events and are freely able to co-operate without avoidable strain or friction. It avoids the settlement of differences by domination, which suits only one side, or by compromise which suits neither side. Co-operation when sought emerges from acceptance by all concerned of the facts of the situation and secures the maximum advantage possible from the whole range and depth of their knowledge and experience. Balance is required for effective co-ordination, because people in similar jobs usually vary widely in personality and competence.

Effective co-ordination is an essential feature of any efficient organization and is achieved through acceptance of the fact that functions and departments are essentially inter-dependent and not independent. Accordingly, when the facts of a situation require co-operative knowledge for successful achievement, this is spontaneously assured by informal conference of the parties interested, followed by appropriate action. For this reason, in the interest of smooth working and effective action, people concerned with the same immediate objectives should be as close together physically as practicable. It is essential for all concerned to know what action the situation demands in order that authority may be exercised by satisfying the demands of the situation, rather than by domination. Indeed, co-ordination disappears with the aggressive individualist who uses his dominant personality to enforce co-operation in a weak organizational structure. On the other hand, a weak or unstable personality may fail to secure real co-operation even in an organization based on a theoretically sound structure. It is often the case that problems are complicated by the impact of personalities, themselves facts in the situation which may not be realized when the same personalities are seeking to solve a common problem.

In securing the efficient and smooth co-ordination of effort among all parts of an undertaking, successful administration is not a matter of creating co-ordinating committees, whether of the vertical kind which links together several or all levels, or the horizontal type which binds related functions at practically the same level of authority and delegating to them what is really a personal and continuing responsibility. For committees are naturally discontinuous, slow in action, particularly in co-operating with other agencies and wasteful in manpower in terms of the collective salaries of their members. Members often display little sense of proportion by spending an inordinate length of time in dealing with irrelevances and matters of minor importance. Committees have been described as ideal instruments for enabling weak and indecisive personalities to procrastinate. They are sometimes formed in order to avoid giving authority to a particular person or as a means of promoting sectional interests and, in many cases, of evading personal responsibility. For committee decisions are necessarily taken collectively so that any member challenged is easily able to find shelter with the plea that the matter in question was a "committee decision". This, however, is not to argue that com-

mittees have no place in industrial organizations as fact-finding bodies and to provide for the explanation and free discussion of all relevant facts of a situation leading to an acceptable decision. However, successful committee work requires the selection of members who are prepared to give some advance thought to their future deliberations and have the ability of self-expression in committee. When committees are properly used in an advisory or consultative capacity, it is unusual for the executive concerned in implementing their findings to exhibit any tendency against taking the actions agreed ; but care is needed that committees do not undermine executive authority and consequently negate executive responsibility.

Another approach to co-operative achievement through the committee system is in joint consultation designed to serve as part of the co-ordinating process and not, as is popularly supposed, as a form of industrial democracy. Effective joint consultation can assist in fostering a spirit of participation by disseminating the objectives and policies of management and securing co-operation in their achievement. Opportunities can be taken to diffuse a wider understanding of the possible impact of economic forces on local activities and to prepare the way for securing economies in the use of resources and through the improvements of processes and practice. More precisely, procedures of joint consultation may be usefully adopted in establishing an acceptable code of works rules, in improving or maintaining the standard of attendance and time-keeping, possibly in dealing with unfortunate questions of redundancy, or, more happily, in securing higher productivity through securing a gradual easing of restrictive practices.

The process of joint consultation should be designed to carry, both ways, information vital to the attainment of the common objective, to convey upwards the views and wishes of various ranks and also to render material assistance to management in the solution of the basic problem of inducing each man to do what the company's objectives need him to do for their successful attainment. In devising the terms of reference of a joint consultative council, it is important to ensure that there is no weakening of executive authority, whereby foremen and other supervisors obtain news from their subordinates rather than through their own immediate superiors. Facilities should be provided for group discussion of items of common interest, with subsequent facilities for wider discussion, so that consideration may be given to the views of all ranks. The councils serve in an advisory capacity only and are usually debarred by their constitution from discussing matters governed by negotiations between trade unions and management. Goodwill on the part of all is required for effective joint consultation, which requires a two-way flow of subjects for discussion and the absence of previous discussion by either managerial or other sectional interests in order to ensure a basis of full confidence. In the absence of mutual confidence, councils tend to be used by worker representatives as a convenient channel for conveying their grievances and safeguarding what they consider to be their rights, whilst managerial representatives tend to develop a defensive and restrictive attitude in protecting what they consider to be the rights and responsibilities of management.

Clearly the absence of a free exchange of ideas and viewpoints can only reduce what should be effective consultation into a time-wasting conflict of opposing attitudes.

It is unfortunate that the fulfilment of their design is in practice severely limited by practical considerations, for some of the hypotheses on which the idea of joint consultation is based cannot be axiomatically accepted, although it is to be hoped that the progress of time may bring improvement. It appears that many workpeople are disinterested in broader problems of management so that representative committees enliven but little interest among them. Even in many cases where interest is shown, representatives often possess neither the training, experience nor intellectual capacity to make any real contribution to the solution of current problems, so that committees of this kind rarely rise above discussions affecting working conditions, welfare services and other amenities. It is in any event difficult to achieve effective communication between representatives and their constituents, and it is not surprising that, in practice, representatives cannot invariably be relied upon to carry back and disseminate accurately to their fellows the views and decisions taken. Indeed, no one can expect to be so well placed in this respect as the foreman who has constant access to management and workers in the ordinary and inevitable course of his daily duties. Joint consultative procedure being mechanistically devised cannot be expected to possess the natural spontaneity of daily personal relations between supervisors and workpeople. It seems, too, that joint consultative committees are often disliked by supervisory staffs on the grounds of their exhibiting an inherent tendency to short-circuit and disrupt the management chain. In some cases, however, their introduction has led to improvements in the line of authority as a result of the added emphasis placed on existing weaknesses in the strength of the line of command. Occasionally, also, it has transpired that representative committees have threatened the accepted means of protecting the interests of workpeople by means of collective bargaining by disregarding the established channels of worker representation through the trade union.

In conclusion, it cannot be too strongly emphasized that the process of joint consultation does not and cannot by its nature provide an effective substitute for efficient management through the line organization. Indeed, if the time and effort devoted to the establishment and so far relatively unrewarding activities of joint consultation had been devoted to improving the quality of management and the efficacy of the chain of co-operation in establishing efficient two-way communication through and at all levels, much greater progress could well have been made in increasing productivity. Nevertheless, provided priority is accorded to the establishment of a sound organizational structure, the effectiveness of management may be increased as the result of patient effort and perseverance in fostering joint consultative practices in order to learn everything possible from the man on the job. For unless the benefit of his particular knowledge and experience is sought and his viewpoint on current affairs is realized, management cannot be completely effective.

The adoption of a suggestion scheme is a useful adjunct in securing co-operation, provided that all suggestions made are formally considered by the management and generous rewards are made for acceptable suggestions in clear relation to their value to the company, expressed, for example, as a percentage of the savings resulting from the suggestions over a given period. The adoption of an effective scheme does more than merely suggest improvements, for it can be used to give management another channel of communication through which supervisors can indicate current problems and invite co-operation for their solution. This may be accomplished by the secretary of the scheme regularly circularizing supervisors for particulars of current problems for selection and discussion by all employees through the works magazine or otherwise. It is beneficial to encourage suggestions by providing facilities in appropriate cases, whereby an employee with a suitable idea may have it developed at the expense of the company with the view to a proper reward being made on its successful fruition. An important incidental benefit often arises from the adoption of suggestions made for reducing human effort by reason of the impetus consequently given to the tempo of production. In cases where suggestions concentrate on reducing manufacturing costs, care needs to be exercised that their adoption is in no way detrimental to good design. Of course, not all suggestions directly result in cost savings; for example, their objective may be to improve safety arrangements or administrative procedures. In such cases, tangible recognition of the company's appreciation needs to be assessed as generously as possible. Although it is part of the duty of supervisors to suggest improved safety measures and to effect economies, yet it is unwise not to give tangible recognitions to outstanding achievements of this kind.

The Functional Structure

In the larger firms, functional advisors are often empowered to provide technical services in the fields of production and distribution, to define standards of operation and performance measurement, to undertake planning functions and to prescribe methods and procedures by agreement with executive managers or through central directives from the chief executive. In this way, functional services are designed to promote the effective working of management and all operational activities by making available guidance and assistance within the specialized fields of knowledge and experience concerned.

In the interests of efficiency and the essential maintenance of good working relations, it is imperative that executive managers should be appointed as definite leaders of their personnel and that functional advisors, whilst making their presence felt as an integral part of the decision-making machinery, should navigate rather than pilot, for failure to adhere to established lines of authority is a frequent cause of friction and the uninvited intrusion of the specialist is naturally resented.

The task of the executive supervisor is, of course, to control the working group. It is understandable that with the development of functional activities in larger undertakings, he may express the view

that his authority has been taken from him and re-distributed among specialists. He may claim that he is told whom to employ by the personnel department, what to make by the planning department, how to do the job by the methods department, when to do the job by the progress department, what the standard of performance is by the time study department, and so on. This development with, however, the emphasis on advice rather than domination is, of course, a natural extension of the operation of the principle of specialization, which is the root of all economic progress ; but which, nevertheless, raises problems of human relationships in the linking up of specialized functions with the line organization.

Safeguards are needed so that unity of command at the working point is in no way violated. As part of his responsibilities, the line executive must observe the authority of the functional advisor to say " yes " or " no " within his specialized field, and to give technical instructions to his own service of technicians, just as the functional advisor must accept the fact that he has no authority to issue executive instructions to or countermand the decisions of line executives.

The problem may appear to be unnecessarily complex when there is a clear division between functional and operational control right through a large-scale organization, from headquarters through the division and group to the individual operational unit. The theory here is that at each level of command, the unit, the group, the division and headquarters, the services of functional specialists are available to each operational manager who alone is responsible for their use. This arrangement raises the problem of providing for the co-operation of the various centralized activities with one another as well as with the decentralized operational units and has an inherent tendency to multiply the number of possible frictional points of contact, to retard the speed of decision and to raise problems of internal liaison and communication. Nevertheless, the quality of decisions taken may be improved, provided functional managers are effective in selling their ideas to operational managers and either local conditions are not important factors to be considered or the various operational units are closely situated rather than widely separated and remote from headquarters.

Functional relationships should not be confused with relations of a more specific kind which arise from the appointment of " staff officers " as personal assistants to higher executives. The higher executive, especially in the larger company, cannot be expected to fulfil his responsibilities without undue strain unless he has the assistance of an efficient staff. The staff officer has not authority in his own right, for he merely extends the personal responsibility of his chief in dispensing his authority and exercising certain responsibilities for him in his name. The staff officer thus functions on the basis that he consults his chief on matters of policy and importance and that those whom he instructs on behalf of his chief are entitled to enquire whether or not the chief has specially approved the instruction and, if not, to exercise the right to discuss it with him. The relations of the staff officer with executives and functional advisors are, therefore, purely informal

in character and dependent upon mutual goodwill and understanding of his special position in easing the burdens of his chief. The arrangement provides a valuable means of improving the effectiveness of senior executives and of training junior executives if it is properly used. There are, of course, dangers in the arrangement ; for instance, the staff assistant may tend to become the "power behind the throne", or substitute his own views for those of his chief, or engage in company politics, or otherwise give cause to line executives to resent his intrusion. The availability of a personal assistant may encourage the manager concerned to retain jobs which he ought properly to delegate to his line subordinates, or to neglect his responsibility for direct management by leaving too much in the hands of his personal assistants. These dangers are, however, minimized when the staff assistant is appointed for a definite period on a rota basis as part of a plan for executive development, during which period a reliable appreciation may be made of his character and ability for executive or functional authority.

Where the instructions of a chief functional advisor are designed to affect the operational activities of subordinate organizations, he should have the necessary instructions issued through the staff with the authority of the chief executive unless he is satisfied that the executives concerned accept their necessity. A functional advisor in a subordinate organization is responsible to the chief functional advisor at headquarters for the efficiency of his particular service. He is also functional advisor to his local executive from whom he takes orders and to whom he is responsible for his daily activities as part of the working group. Provided he is efficient, his local executive will readily turn to him for advice and assistance ; but, if he receives local instructions which are likely to impair his efficiency, he must refer the position to his functional supervisor. The effectiveness of functional specialists lies in their expertness and in their ability to persuade line executives to accept their ideas.

Large-Scaleness

In order to secure a maximum measure of security and stability, it is natural that firms should enter into various trade associations with one another in such matters as the fixing of prices and standard conditions and terms of sale, market quotas and contract allocations, and the exchange of technical information. Such arrangements are often beneficial from a national point of view also, as both security and stability of trade are necessary for the success of a policy of full employment. At the same time, the national dangers inherent in restrictive practices need to be more widely appreciated, even though they appear to bring immediate personal advantages. Price-fixing arrangements may be necessary to secure the maintenance of quality ; but are to be deplored in so far as they make for the retention of uneconomic units. Obviously, restrictive practices of all kinds, whether on the part of management or men, dilute living standards by weakening our national capacity to compete in overseas markets and retarding the progress of scientific and industrial developments. Undoubtedly, great benefits

could arise from unleashing resources of effort and achievement at present rendered inert by restrictive practice of various kinds.

The search for greater stability and security, the pressure of economic events, or the ascendancy of a dominant company, may lead to more rigid forms of association through the medium of trade investment, the amalgamation with, or the absorption of one company by another company, or by the emergence of a holding company having a controlling interest in various undertakings. Such groupings may be of a horizontal or a vertical nature, or partly of one kind and partly of the other, so that a wide variety of arrangements is possible.

The horizontal arrangement is a grouping under a single control of similar businesses, whereas the vertical grouping unifies under a single control the dissimilar businesses leading to the manufacture of similar end-products, the process absorbing all operations from the original production of raw material to final sale of the end-product, proceeding in either direction as circumstances permit.

In the case of horizontal organizations in which repetitive activity operates, there is a natural tendency towards centralization and functional control, whereas with the vertical type of organization engaged in dissimilar activities, there is a tendency towards decentralization, in some cases with the addition of a functional control from the centre.

Horizontal integration may secure a degree of monopoly trading by restraint of competition, or it may obtain a wider spread in a single trade covering a variety of similar products at different levels of quality and price, or it may be designed to secure administrative and technical economies by permitting a greater spread of fixed overhead expenses, by more effective and less costly marketing per unit of output, through bulk purchasing of raw materials, or by the pooling of technical knowledge, patents and private "know-how". The vertical grouping may be designed to guarantee supplies of raw and partly-processed materials in order to ensure control of quality at all stages of manufacture, or to expand the market as a result of reducing selling prices by controlling the costs entering into the price of end-products and so obtaining a differential increase of profits.

The process of combination, whether of a horizontal or vertical nature, does not of itself guarantee achievement of the objectives for which integration was sought. In fact, it may well result in the emergence of an unstable structure unless sound constructive policies are used in welding together undertakings which when conjoined may generate disruptive influences, for loss of autonomy and independence may, by diluting interest and initiative, give rise to complacency and managerial inertia so that efficiency is reduced instead of benefits being obtained. It is by no means unknown when businesses have been incorporated into a vertical amalgamation for the outgoing owners to be brought back as an advisory committee in order to avoid disaster.

The resources of the larger firms often bring important advantages, at least for an appreciable period, by way of providing for research, development and market intelligence, although it may well be the case that unit-cost differences related to firms of different size are

relatively small in comparison with cost variations which arise from historical accident or from differences in managerial ability. Larger concerns also have more scope for experimentation and may secure more economies than smaller firms through the adoption of uniform administrative practices. The larger companies which secure satisfactory results are often able to obtain finance more readily and at less cost than the smaller firms, because of their wider investment appeal, better bargaining position and the general financial expertness which is often available. Another advantage of the larger concern is its ability to operate various functional activities which are beyond the scope of the smaller firm and to adopt improved methods of performance in its methods of production and selling, leading to increased output per man-year through a higher degree of specialized activity.

The large-scale industrial plant, as distinct from the large-scale company with scattered or diversified plants which does not operate large-scale units, often secures technical advantages as the result of being able to employ superior manufacturing methods and to minimize costs per unit of output because of reduced investment-cost per unit of plant capacity and increased operating efficiency attributable to proportionately lower plant running losses. Other technical economies may arise from large-scaleness of plant as the result of the wider scope provided for specialization and the integration and linking of processes. Specialization enriches competitive vitality by securing improvements in industrial techniques, in quality of product and in substantial price reductions to consumers and thus providing the economic justification for the exchange of goods and services. Closely allied with technical economics are those marketing advantages which arise from the bulk purchase of raw material and the mass-distribution of manufactured products. These advantages on the purchasing side are also obtainable in the case of horizontal combinations which are concerned with the manufacture of a limited range of similar products, whereas, on the marketing side, the benefits of risk spreading enure to the horizontal group which manufactures a diversity of products.

On the other hand, large-scale firms, as distinct from large-scale plants, tend to generate human problems where decisions based on impressions gained through remote control do not readily secure the personal loyalties of the smaller units. Large businesses with a number of outlying establishments sometimes seem to generate a centripetal tendency towards headquarters. Their executives like to feel themselves part of head office, near to those in high authority. The danger is that headquarters may become "top-heavy", develop a bureaucratic inertia and de-energize its real function as the central nerve-centre directing and motivating field commanders in the attainment of their objectives. Over-centralization usually leads to duplication of administrative work, loss of time and "remoteness", which cause lack of understanding of local problems, with reduction in the quality and speed of decision as well as in flexibility of operation.

Decentralization, which reduces the size of the decision-making unit by delegating to each decentralised unit the power of decision, implies a belief in the workings of the smaller and more intimate society where

close understanding and teamwork prevail. The ideal arrangement is to retain the advantage of centralization through a centralized control which ensures overall co-ordination and adherence to general company policies, whilst at the same time securing the undoubted benefits of decentralization which arise on the human side from the more personal relationships of the smaller and less complex units, where the full impact of the ever-changing business situation is realistically experienced. Speed of decision and action depend upon adequate delegation of authority, with centralized controls kept at a minimum ; whereas the quality of decision is inversely related to the volume and complexity of emergent decisions and demands that problems of general incidence should be given full and mature consideration with the assistance of functional advisors.

Effective decentralization retains the benefits of centralization through the provision of functional expertness at the centre in the fields of research, development, market intelligence and finance and secures an overall control through the medium of master budgets covering programming, investment, costs and revenues. Decentralization simplifies the organizational framework, reduces the expense of co-ordination, limits the volume and complexity of paperwork at headquarters and, not least, enables the higher executives of the company to concentrate on the more important decisions. At the same time, speedier and more realistic decision-making in matters of local importance is possible, because authority over detail is no longer removed by distance and time. Decentralization, which not only implies a local willingness to accept responsibility, but a central willingness to have faith in spite of occasional mistakes which may be made, is most effective where the management accounting techniques in use are sufficiently developed to provide, in compact and realistic form, the facts to enable top management to ensure effective control of the evolving situation.

It is unfortunate that realization of the benefits of decentralization is in practice restricted by a natural reluctance on the part of many overworked executives to delegate responsibility, coupled with a traditional adherence to established procedures and dislike of changed methods of working and the mistaken prospect of an implied loss of power and prestige. On the other hand, over-decentralization needs to be avoided, for its benefits can be destroyed by too great a measure of local autonomy which does not permit of a collective organization. Variations of practice and procedure should not be allowed to emerge with a consequent inability to synchronize activities and compare results, together with a resulting failure to observe and interpret events quickly and accurately and secure overall balance coupled with the most economical use of resources. Nevertheless, effective decentralization should not be obstructed by granting a superior status to those who are centrally situated to the detriment of those located at outlying plants in relation to their real responsibilities.

Mass production presents a special aspect of large-scaleness. In mass production, the conveyor determines output and minimizes the man-power expended in work movement. Mass-flow production

requires heavy initial capital expenditure for specialized plant, equipment and tools to an extent which is justified only with a long-running programme. Considerable initial expenditure is required also on development work and there is the inevitable time-lag between the original conception and its ultimate achievement. These considerations necessarily require the exercise of sound economic judgment in minimizing the risk factor and a high order of technical skill supported by a considerable measure of confidence and ample financial resources.

Relative to each worker employed and to each unit of output, working capital requirements are reduced, but fixed capital investment is increased in comparison with other methods of production. The financial feature of flow production is therefore investment in fixed assets rather than in labour time per unit of output. For this reason, the transformation of any plant using relatively highly skilled labour to a massed-flow basis involves risk taking, which, if proved ill-advised, could be disastrous in its results.

This type of activity secures the ultimate ideal of complete specialization, giving control of quality, output and cost, although, in cases where raw material costs are a relatively high fraction of total costs, satisfactory results may not be secured unless control is obtained over sources of raw material supplies. The organizational problems to be solved with this type of plant are to secure its continuous operation, a high degree of plant maintenance and the sale of the product with, in the case of chemical processes, the disposal of any residues of manufacture.

Where an adequate market exists for the product and production runs at a high level, the ultimate cost per unit of output may be relatively low. Provided the market is encouraged by reasonable prices for the product, greater demands may arise in the future, leading all the time to reduced costs, more profits and further sales, to the limits of plant capacity and multi-shift working. For it is particularly important that expensive specialized plant should be operated at a high load factor, assuming plant efficiency increases with output. Load factor may be represented by the formula :

$$\frac{\text{Actual output in the year}}{\text{Max. continuous annual output}} \times 100 \text{ per cent.}$$

High load factor operation is necessary in order to reduce the incidence of fixed overhead expenses per unit of output and to enable the plant to amortize itself soon enough to be replaced as significant technical improvements become available. It is not efficient for a company to so increase its potential productiveness that, in a limited market, the realizable return could not compensate for the necessary increase in fixed capital investment. If a mass-production plant has been constructed without a realistic appreciation of market potentials, and if trade permits only operation at peak efficiency for intermittent periods, the maximum cost reduction achieved during these periods is no evidence of efficiency. It is the average cost per unit of output and capital return over the whole trade cycle considered in relation to competitive achievements which measures the industrial efficiency

of the mass-production firm. Whilst this type of production is unassailable with an assured expanding economy, it is clearly inherently vulnerable to adverse economic conditions because of the large capital investment involved.

The Product-Division Structure

Homogeneity and not heterogeneity of production is the key to greater productivity, for in this approach management is faced only with problems which are within its sphere of knowledge and training and a maximum degree of specialization is possible, for it cannot be over-emphasized that effective management and the intensive application of specialized effort provide the only way to maximize industrial achievement. The urge which often prompts industrialists to expand and to make all the ingredients of what they sell should be controlled, so that expansion is not made for its own sake, or a gradual drift away from homogeneity imperceptibly occurs.

As companies gradually increase in status and become more diverse in their activities as the result of a gradual expansion over the years, or more rapidly perhaps through the merger process in which additional product responsibilities are assumed, the heterogeneous nature of the products and the incidence of large-scaleness alike tend to complicate the organizational structure, manufacturing processes and administrative procedures. As a result, it is not surprising that hidden inefficiencies imperceptibly arise which tend to undermine the financial strength of the group. The usual symptoms are excessive investment in material stocks and work-in-progress, subnormal plant load-factor, abnormal production periods, and excessive overheads per unit of output. Although high-volume production and sales may be achieved with many products, potential profitability is not realized in practice by reason of the deadweight of costs associated with the inefficiencies which have thus imperceptibly arisen.

Some measure of internal reorganization is clearly required in order to enrich the competitive vitality of amorphous companies to which these symptoms apply. In diversified organizations where the volume of output does not justify the actual physical segregation of production for each class of product, the problem of control may be simplified to a varying extent and a clearer picture of affairs displayed through maintaining planning, progressing, costing and other routines on the basis of product-groupings from the paperwork point of view.

Where the product-division type of organization (see Figure 3) is justified by reason of the volume output and sales of the principal ranges of products, the larger diversified company may segregate its products or processes according to their similarity in unified groups or product-divisions which are more or less self-supporting. This natural grouping of processes can endow the product-division units with considerable advantages over the smaller homogeneous companies, through the financial strength, wide business experience and facilities available centrally. As the product-division structure when fully developed is functional, the arrangement can achieve an administrative efficiency otherwise unattainable in the larger diversified company. In the larger

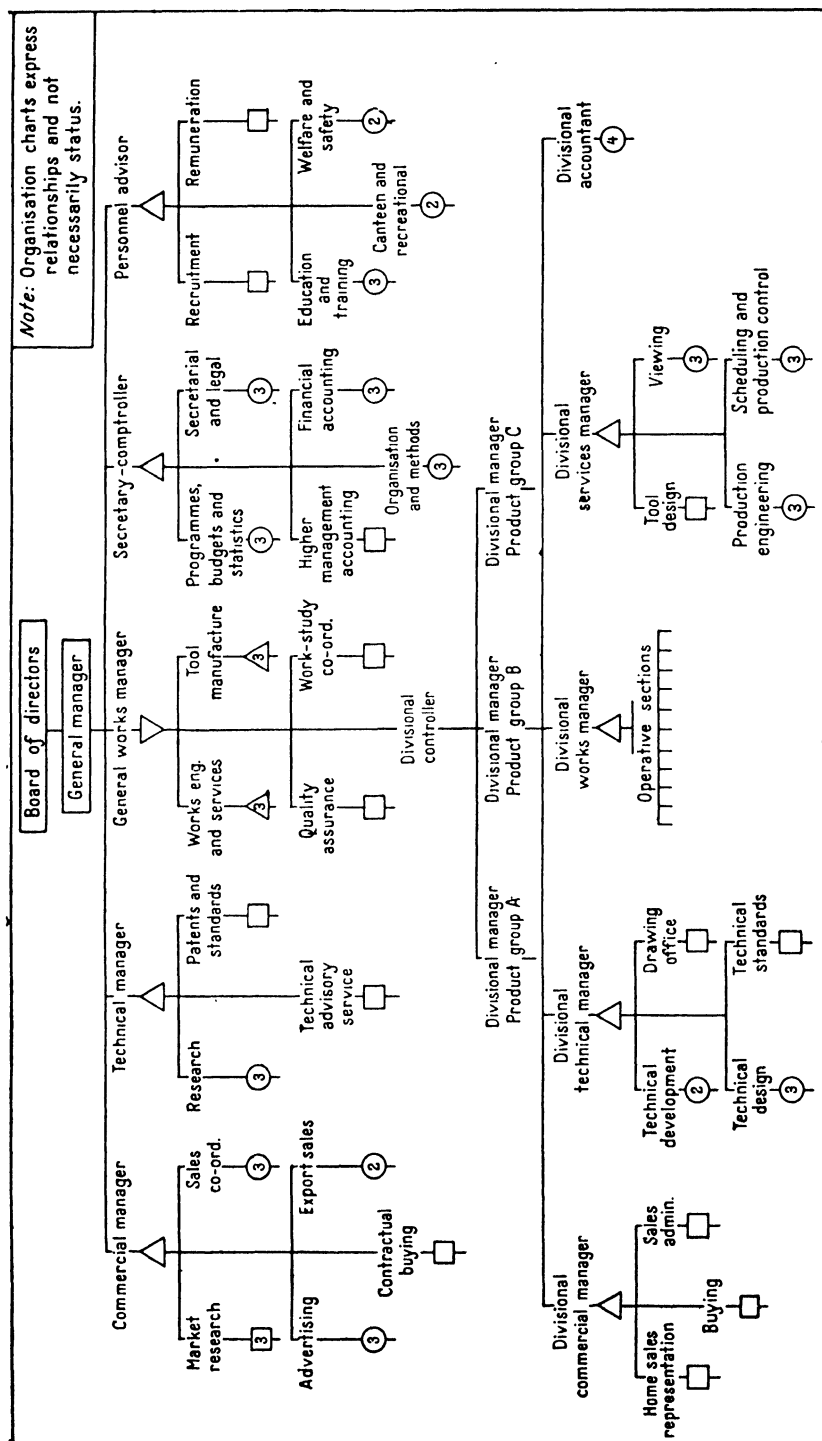


Fig. 3.—Outline Organization for Product-Division Structure.

group it is not possible to have completely autonomous managers of operational units, if uniformity of policy is to be secured in the fields of development, finance, industrial relations, marketing and intelligence, although it is essential to ensure that each operational manager is in effective command of the situation. Accordingly, the operational manager undertakes constitutional leadership within general terms of reference, in the formulation of which it is important that his co-operation should be encouraged so that he is not merely consulted as a matter of form.

Thus the larger amorphous group may recreate with greater competitive vitality the relatively small homogeneous company and obtain the corresponding benefits of unit control inherent in a self-contained plant, whilst securing the benefits of concentrated production and sales and retaining the financial and other economic advantages of the larger organization. Arrangements of this kind avoid the disadvantages inherent in small-scaleness on the one hand and in "undifferentiated diversification" on the other.

Sometimes, however, this arrangement is not carried far enough, and there remain undifferentiated a number of products which, if segregated, could well prove to be more profitable, or cease to be the source of hidden loss. For the risk is always inherent in an amorphous organization that some products are manufactured which do not yield a profit commensurate with the capital risk involved, apart from the fact that their continued amalgamation complicates the organization and reduces overall output. There is less risk of unprofitable lines continuing in the fully developed product-division structure, as management is better circumstanced to ensure either that production methods are revised or markets are improved to enable each product range to justify its continued manufacture.

CHAPTER 3

PROCESS STUDY

PROCESS study is concerned with relatively long-term policies to improve basic processes, plant and equipment and to reduce and standardize the range of products without loss of specified quality and performance.

Research and Development

An adequate rate of national development depends basically upon fundamental research and the development of its discoveries through worthwhile investment, with a general willingness to accept innovation and change in the interests of a rising standard of living. The Government recognized its responsibility in respect of the problem of economic development during the First World War by forging a link between science and industry in the form of the Department of Scientific and Industrial Research, charged with the function of encouraging the regular application of science to industry under the responsibility of the Lord President of the Council with an Advisory Council of leading scientists and industrialists selected on their personal merits and not as representative of special interests. The Department not only maintains its own research establishment, but makes grants for training future research workers and for special research projects, as well as to co-operative research associations. The development of research associations in providing research, scientific advice and technical information has been such that the application of science to industry is no longer a prerogative of the larger companies. Indeed, the influence of this development is such that many medium-sized companies have followed the lead of the larger organizations in forming their own research department, as well as participating in corporate research. Whilst the total funds devoted to industrial research seem substantial, in point of fact, the amount expended per head of the population is very small. A more realistic contribution from industrial income and taxation would bring substantial benefits to those directly concerned and the community at large.

After careful investigation into various alternatives through process studies requiring the compilation of flow schemes and the analysis of each process stage in order to test the technical principles and economics of the process, central research departments of industrial companies sometimes install and operate pilot plants in order to investigate in more practical detail the physical characteristics and properties of proposed products and to assess prospective production methods and costs. As the output from a pilot plant is limited, working results do not always provide sufficiently close approximations to the practical

problems of plant design, production and marketing which are likely to arise, although the success achieved at the pilot-plant stage permits reasonable estimates to be made of prospective benefits from future development expenditure. In order to avoid the impact of heavy capital risks inherent in the erection of full-scale plant before the process or product is commercially assured, an intermediate stage is sometimes interposed between the pilot-plant and the full-scale unit by establishing the semi-works which operates on a scale adequate for the commercial solution of all major problems of design, production and marketing. In manufacturing industries, valuable experience may also be gained and unnecessary risks avoided if new machines and tools are tried out on a semi-works scale in working conditions as varied and searching as those normally experienced with full-scale production. The heavy capital outlay often involved in developing a new product from the laboratory stage via the pilot plant to full-scale production has led to the emergence of joint ventures, established through the co-operative effort of industrial groups in pooling their knowledge and experience in some specialized field. The development may be designed to guarantee supplies of some basic raw material for their common use or to produce for mass sale a new product of high potential demand, in order to meet which their combined technical and financial resources are necessary.

The financial implications of long-term research make it important to ensure as far as possible that specific research projects will be commercially justified. Accordingly, use may be made of a research advisory committee, consisting of representatives of each research division or unit with representatives of design, production engineering, manufacturing, sales and cost departments. Although a research committee of this kind may usefully advise on the formulation of research and development policy to be established by the directorate, the research manager should enjoy complete freedom of action in the execution of the plan finally agreed. There should be no arbitrary interference with agreed research work ; rather it is preferable, unless the wrong project is to be stopped, that a decision to curtail a particular activity should emanate, either from the research manager, or from the research advisory committee with full consideration given to all relevant facts, including an estimate for future commitments.

Economic considerations in respect of research activities require not only that expenditure should be in reasonable relation to available funds ; but that it should be wisely and effectively disbursed in securing worthwhile results. Only when deliberation, co-ordination and control have been introduced is it practicable to ensure that research and development is reasonably economical and effective. Effectiveness also requires that the industrial research programme should be sheltered from the vicissitudes of industry and not subjected to fluctuating budgets, for research is essentially a mental process requiring patience, perseverance and complete freedom of thought and action, which is possible only in the absence of financial worry, vexatious interruptions and other disturbing factors. It is worth remembering, too, that research workers take little notice of the clock so far as original thought

is concerned, whilst important discoveries have resulted from jobs going wrong.

The most effective way of controlling research and development expenditure is obviously to scrutinize each project carefully and assess its merits when permission is first sought to incur the anticipated expenditure and to receive regular progress reports, supported by a statement of capital expenditure and commitments with information regarding man-power usage and requirements. The need to ensure the provision of this essential information encourages in research units a measure of self-discipline and planning and, at the same time, discourages uneconomic policies. So far as man-power usage is concerned, it is doubtful whether anything in the nature of a detailed costing system with time sheets should be instituted, except in the case of routine workers ; a preferable arrangement being to require weekly returns from leaders of research units showing the approximate percentage of time spent by research workers under their immediate control in respect of each main activity. Generally, one doubts whether it is desirable to charge out the cost of advice given, either to various divisions of a company or to individual companies within a group, as specific items of cost, as this procedure may tend to avoid adequate use being made of available research facilities. The preferable arrangement is perhaps to allocate the total expenditure on a global basis, so that an opposite tendency prevails for each division of the company to get as much value as possible from research units, subject, however, to global expenditures on projects being controlled from their inception. Nevertheless, in price-fixing the cost of research undertaken in developing the product is an important factor to be taken into account.

Essential differences between long-term research and short-term development are the precise definition of the given problem, the time factor and the emphasis on manufacturing economy. This may require development not only of the techniques of production, but also of the tools and materials, including the material of the manipulating tools, and the important problem of incorporating new skills into the production line. Whilst staff engaged in fundamental research should be protected from current production problems in order to concentrate on the product of the future, it is usual for short-term facilities for research and development to be maintained close to the manufacturing plant. This arrangement facilitates dealing with everyday enquiries regarding such continuous problems as quality maintenance, process improvement and cost reduction. Facilities of this kind should preferably be separate from, but contiguous to, the production departments with a formal channel of authority through which problems can be screened.

The completion of a successful prototype which can be readily transformed into a production article is the main purpose of development effort rather than speed. Prototyping applies to the development of capital and consumer goods, as well as to the specification of manufacturing processes, and may range from a simple "lash-up" to try out an idea to a finished working model which indicates the final appearance of the product.

Priority in the sequence of development should normally be given to making a prototype which meets the operational specification and, if chemical processes are concerned, anticipates and solves problems of corrosion and contamination. Unless prototyping is merely restricted to improving appearance, it is generally inadvisable to concentrate attention primarily either on appearance or production methods, vital as these are later to secure consumer acceptance and competitive costs. The developed prototype should, however, be critically examined at each stage of manufacture in order to ensure that the design and tolerance are adapted to realize the desired standard of quality and functional efficiency for consumer acceptance and low-cost production. Adequate attention at this pre-production stage avoids manufacturing difficulties which would otherwise arise and also reduces the overall time required to achieve the full manufacturing rate of output. Accordingly, close liaison is needed amongst design, production engineering, tooling, inspection and sales departments before the final design is released, if economical production and consumer acceptance of the product are to be realized.

The close location of designers and production engineers is particularly desirable to enable production engineers to anticipate requirements for new products, processes, tools and manufacturing techniques, and at the same time educate them in the theoretical foundations of technical products, the appreciation of which cannot fail to benefit the company in the long run. Competent staffing of engineering departments is necessary not only to break down design and production problems and so reduce the pre-production period ; but also to increase manufacturing efficiency by ensuring that everything is correct before the job is released for production, because a high rate of productivity rests largely upon obtaining a reasonable period of design stability. Particular care is necessary in order to ensure the accuracy of all piece-part, assembly and inter-operation drawings, schedules and specifications, for it is upon these records that the whole manufacturing process depends. Additional expense and risk of error arise when design changes are introduced into the factory after manufacture has begun, for not only may parts already produced have to be scrapped, but appropriate amendments must be made to paperwork issued to various departments. Therefore, paperwork should be issued to the factory only when it is reasonably certain that no changes will be made. Changing customer requirements certainly require tactful handling if delays and unnecessary expenditure are to be avoided.

Scheduled quantities of anticipated requirements are an essential basis for considering the design in detail in order to determine the most economical cost of manufacturing the finished product. It is unfortunately the case that accuracy costs money and requires expenditure at a rate which increases with the stringency of the accuracy specification. The closer the limits the greater is the cost of machining, and every dimension placed on a drawing and each inspection gauge entails expense and increases the production interval. Moreover, manufacturing scrap can usually be minimized by the intelligent selection of dimensional tolerances. Accordingly, careful consideration

should be given in translating the design into the production article to ensure that tolerances are no more stringent than is necessary, yet fully consistent with functional efficiency, in order to secure reductions in manufacturing costs and maintain confidence between design and manufacturing activities. It is well to realize, too, that the absence of near-duplication of similar parts avoids extra costs in designing and drawing additional components, in designing and making extra jigs and fixtures, in designing, making, storing and setting tools, not to mention the extra costs inherent in shorter production runs and in the multiplication of stored parts. In translating the design into practical form, production engineers should investigate all other factors which determine the manufacturing economy of piece-parts, castings, assemblies and, where relevant, installations, in order to secure cost economies without jeopardizing functional efficiency or user acceptance of the final product. Contours should be kept as simple as possible in order to avoid unnecessary machining. The use of tooling that makes it possible to increase machinery speeds, allied with the use of materials for fabrication that favour higher machining speeds, exerts a scissor effect in the drive to cut costs. In some cases, however, it may be economical to use a design having a higher fabrication cost where this extra cost is more than covered by reduced assembly expense. In any event, design should endeavour to minimize assembly costs and facilitate maintenance.

Market research is complementary to technical research and development. Policy based on successful market research enables a greater effective demand to be achieved, giving rise to lower costs of production per unit of output, even after including costs of market research. The consumer is also more likely to be satisfied with the product, for designers cannot fully meet the requirement of users without clear knowledge of what they really want. Few people would deny the statement that market facts are complicated and difficult to interpret. This should be taken, however, not as an excuse to avoid the issue ; but as a challenge to solve the problem of producing only for real market requirement in order to avoid wasting precious economic resources. Moreover, the manufacturer who seeks to expand his output needs to assess the strength of his competitors and find means to overcome their effectiveness, whilst the manufacturer who merely wants to maintain a satisfactory demand for his products does well to ascertain whether or not his manufactures really meet the real requirements of his customers and, if not, what alterations or modifications are needed. Direct competition may come from similar manufacturers of essential products. Marginal expenditure on less essential goods of a consumable nature is usually of an indirect and highly competitive nature, influenced by buying habits, quality, styling and, in the case of branded goods, packaging and advertising appeal. It is well known that people tend to compromise in their demands for goods, not only in order to meet limitations of their spending power, but also because of advertising pull and, independently, from a natural inclination towards goods of better quality and style. Market research and marketing efficiency are therefore necessary in order to ensure the

retention of a fair share of the market in face of possible counter-competitive practices.

When a new product is being developed, it is advisable not only to ensure the efficiency of its design for production, but also its acceptance by consumers. Although a design may be ideal for production, its sale will be unsatisfactory if it is either too advanced or unsuitably styled for consumer acceptance. Product testing provides a means of safeguarding market acceptance by questioning a representative miniature of the potential market to assess market opinion about the product and whether or not any modifications of functional design or styling are required, in order to improve its sales appeal and so increase effective demand for it. Similarly, new uses for existing products may be found, to which advertising appeal may be directed in order to open up the market and develop their sale. When company decisions are based on a factual analysis of the market, the mistake is avoided of emphasizing particular products because their potential only seems to be favourable, but is not so really, or because an unexpected demand arises without any long-term prospects.

The manufacturer depends for the sale of his products not only on their acceptance by consumers, but often on the willingness of distributors to handle them. Dealer research not only reveals the prejudices of dealers, their opinion of the company, its representatives and its products, but also their reactions towards competitive supplies. Erroneous impressions that impair dealer relationships usually diminish turnover, but can be corrected when their existence is known.

The manufacturer of products which are susceptible to style change carries a special risk, although acceptable designs are possible in various contours. Correct anticipation of popular styles may result in considerable financial gain, whereas failure to do so may result in overwhelming loss. The risk to the manufacturer arises because products must be styled long in advance of distribution and before market reactions can be experienced. Rapidly changing styles and designs tend to increase manufacturing costs and the commercial risk of redundant stocks being held by producers and distributors is also a serious hazard. Although market forecasting is successful in many fields, the problem of style forecasting defies ready solution ; but, as already indicated, market research can assist in limiting the risk of marketing styles too advanced in form or too late in presentation.

Standardization and Simplification

The long-term approach to greater productivity is through the basic review of product designs, resulting in their simplification and a greater degree of standardization without loss of quality and performance. The short-term approach to the same end is from work-study, which secures the adoption of improved manufacturing methods, increased mechanization and reduced material handling, generally requiring only minor, if any, changes in design. The application of good design technique facilitates production and secures labour cost savings, without increasing the cost of design work or incurring costs for

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additional facilities, such as special jigs and fixtures in order to obtain manufacturing economies.

Standardization and simplification are important factors in securing cost reduction, and it is unfortunate that this is not more widely realized in practice. Standards are creative in establishing the general use of the best design, method, process or technique for a given function and ensure consumer satisfaction through operational merit and quality assurance. Simplification is the by-product of standardization, which cuts costs and prices by eliminating unnecessary variation. Differences in material specification and component design for similar uses often result from incomplete knowledge of material properties and capabilities.

It is important to ensure that an assumed demand for variety of end-product does not reduce manufacturing efficiency, as this depends so much on securing reasonable production runs and avoiding waiting and setting time and excessive accumulations of work-in-progress. Greater efficiency secured by avoiding the incidence of these events benefits the consumer through reduced prices, and profits the manufacturer as the result of increased sales.

The adaptability of products to interchangeable manufacture with economical tooling is an important factor in competitive cost reduction for quantity production. Where similar parts are interchangeable, so that any mating parts may be assembled together, the costs of assembly are minimized and spare parts which can be fitted by the user can be supplied as replacement parts. It is, however, impracticable to manufacture parts with absolute precision owing to unavoidable variations in manufacturing processes and to limitations of measuring devices. Accordingly, tolerances are required in specifying limiting dimensions. Interchangeable manufacture which demands fine tolerances requires expensive plant and machining work, so that if quantities are inadequate for competitive costings, recourse is needed to selective assembly, although this slows down the production of completed products and requires additional stocks of piece-parts in order to ensure a sufficient selection of each range of sizes.

The general adoption of British Standards of specification and practice would assist in facilitating production and distribution and in reducing costs. For British Standards, whether provided to secure uniformity, interchangeability and simplification of product, or to provide a uniform basis of comparison between products, or to establish standard methods of test and sampling, or to define codes of practice and standard definitions of terms and symbols, are issued only when there is general agreement that they fulfil a recognized need and have the approval of both producers and users as being essentially practical, efficient and economical and will be maintained in accordance with the latest scientific and technical developments.

These objectives of standardization and simplification require the adoption of a systematic and continuous policy through the co-ordinated efforts of all concerned with each product group on an agreed plan to reduce overall costs per unit of output, for most designs are capable of yielding future economies provided sufficient

thought is applied to the problem. Design analysis by a competent production engineer can often effect worthwhile savings from the application of ideas obvious to one trained in manufacturing methods ; but which may not occur so readily to a pure design engineer. Value analysis of this kind should be intensively and continuously applied in order to obtain all possible savings in costs of production, with due regard to the incidence of drawing modifications and the overall economics of the situation. Information regarding improvements made should be passed back to designers for their future guidance. Sometimes, of course, immediate design changes may not be justified where considerable engineering expense and time is involved. In any event, the serviceability of a product should not be jeopardized by design changes made for the sake of effecting immediate manufacturing savings, because the success of a product as measured by sales volume is finally determined by user satisfaction, which is related to low maintenance expense, ease of maintenance and freedom from service difficulties. Requests for modifications which originate from manufacturing or inspection services need careful consideration, because those making the request are familiar with manufacturing processes and limitations. The correct timing of modifications to products and processes in the factory should be made on the basis of a routine questionnaire issued to seek information regarding the financial and other implications of the proposed change, such as the effect on interchangeability and tooling. In the result, modifications may be classified according to their urgency on some basis, such as :

- (a) Mandatory change to be effected immediately and production of the particular component to cease until the change is made ; stocks and work-in-progress incapable of modification to be scrapped ;
- (b) Provisional change to permit the use of finished components only, otherwise the modification applies immediately ;
- (c) Deferred change for introduction when specified components in current production are completed and to permit the use of special materials of value without unavoidable scrap ;
- (d) Delayed change for introduction when convenient to " production-planning " and to allow all relevant materials in stock to be used if unsuitable to the modification.

The change note issued to authorize the modification should specify the change as well as its timing in accordance with its classification and should detail the treatment, where necessary, of existing stocks and work-in-progress and the disposal of any redundant material or scrap.

CHAPTER 4

WORK-STUDY

WHILST it is true that willing hands working with outmoded plant may make a profit, so long as the general level of industrial efficiency leaves so much to be desired, whereas unwilling hands using the most modern equipment may fail to secure satisfactory results, neither willingness nor the most modern plant is itself sufficient to guarantee a high level of industrial efficiency. Clearly, successful achievement requires the effective and co-ordinated use of all resources.

Maximum achievement requires suitable and balanced resources operated at their most profitable load-factor under a leadership which ensures co-ordination, complete control and excellent industrial relations. As the ordinary workman responds usually in accordance with the way in which he is treated, success cannot be maintained unless the fact is recognized that production is essentially a human process. Harmonious working relationships are vital to the maintenance of morale and efficiency. It is also essential to secure to each individual a sense of pride and dignity towards his job.

A working environment which vitalizes and motivates human enterprise, ingenuity and effort is a condition precedent to maximum output at economical cost. The creation of the right working environment rests primarily upon good management, for the pattern of a company is largely influenced by those at the top. Those in control should use their knowledge, experience and abilities to create an atmosphere favourable to teamwork and the application of effective work-study techniques involving the critical examination of working methods and assessment of work-contents involved. Trained observers, by reason of their detached judgment and training in observation and analysis, are placed to make valuable suggestions for improvement in the use of production resources which are not always apparent to those who are in constant touch with the job.

Work-study techniques are designed to improve methods of planning, operation and control, without incurring any appreciable expenditure of a capital nature, in order to increase the overall effectiveness of the company's resources, with due regard to safe working and to the maintenance of quality standards. Indeed the legitimate field of work-study embraces every factor which can affect the rate of production or work-flow and the standard of product quality or costs, whether appertaining to the organizational framework or to any engineering, operational, administrative or commercial activity. Work-study actively recognizes that changing circumstances require corresponding adjustments to maintain organizational relationships which are appropriate to the altered conditions, that raw materials, equipment and processes are continually being developed, that better ways can

often be found of doing many industrial jobs, that plant utilization can be increased by reducing down-time as the result of forward planning and efficient maintenance and that man-hour requirements may often be reduced by adding horse-power to man-power in order to eliminate arduous manual effort and release man-hours for additional work. Work-study also ensures that plant is balanced so that output is effective, for unless each job is thoroughly studied, more is likely to be lost in work getting out of balance than is gained as the result of various operations being improved. Subnormal outputs, whether apparent or masked by ineffective activity, are reflected in increased direct labour costs per unit of output and often several-fold in overhead expenses. Although work-study of itself cannot produce goods, the application of its findings undoubtedly facilitates maximum production at competitive costs.

Method Study

On the assumption, often invalid, that successful achievement is reflected in obvious activity at shop-floor level, less interest has in general centred on that aspect of work-study which is concerned with method study than upon work measurement, which has primarily attracted attention as a means of providing incentives for the attainment of greater working speeds, although progressive managements recognize its usefulness also as a valuable means of facilitating programming, manning, productivity measurement and cost control.

Whilst people may appear to be busily engaged in their work, it is often the case that more output could be obtained in the same time with less effort and expense, for obvious activity at shop-floor level does not necessarily guarantee the absence of wasted effort or of extravagance elsewhere. In order to avoid the wasted effort and fatigue which arise from arduous and unnecessary labour, the principles of motion economy, which is an important tool of method study, may be applied to repetitive work. The same principles should be applied intuitively by time-study engineers in cases where their separate application is not justified as a preliminary to work measurement. Wider aspects of method study are concerned with the functioning of the organizational structure, the analysis of processes and procedures, the efficacy of the working environment and the improvement of work-flow in order to reduce the manufacturing interval. Whilst the manufacturing interval is necessarily longer in duration than the sum of the operating times involved in the manufacture of a particular product, its close control is required if excessive investment in work-in-progress is to be avoided. Any elements in these work factors which cannot stand the test of interrogation should be eliminated, redesigned or re-arranged in order to ensure their efficacy at economical cost by securing economies in the use of men, materials, machines and space, thus making more rewarding all revenue expense and capital investment. Conditions precedent to the successful application of method study are the ability and determination to increase output and cut costs, with a realistic appreciation of the human element.

Manufacturing Specifications

Job layout forms (see Figure 4), as prepared by production engineers, specify each manufacturing and inspection operation, the departments, machines and tools concerned, material requirements with provision for unavoidable wastage and man-hour requirements as well as operating times for each class of labour, distinguishing set-up and running times established as the result of work measurement. Quantity requirements, plant capacities and tooling facilities largely determine manufacturing specifications. Additional tooling should be justified on economic grounds and manufacturing specifications then issued for tool manufacture in order to ensure its full integration with the general manufacturing programme. The provision of adequate and modern tool-making facilities is an essential pre-requisite to a high rate of productivity. Indeed, it is preferable to over-emphasize rather than to neglect this factor, because the extra cost of a subnormal load factor in the tool room can be quickly corrected by a high load factor in the factory as the result of efficient tooling.

Method study ensures full consideration being given to the selection of material, for requirements as to strength, weight, serviceability, availability, delivery and cost are often equally important. The selection of materials which will permit speedier production and the careful study of optimum cutting speeds, with due regard to the effect on product finish and the possible incidence of extra rectification work, are important factors in the search for higher productivity, particularly when coupled with a liberal plant replacement policy which ensures full advantage being taken of progress in machine tool and plant design. Economy in material usage not only secures a direct saving of material cost, but it also avoids the expense of unnecessary machining and releases capacity for the output of other parts, so that output and productivity are both increased. When expensive alloys are used, small savings in material usage may be important. Sometimes the use of a higher grade of raw material purchased at an initial extra cost secures savings through more than compensating reductions in processing costs and improved work-flow. Where labour costs are low in relation to material cost, the main approach to overall saving is clearly through the economical use of raw materials, particularly where, as often arises, the amount of basic material in the finished product, through machining during manufacture, is as low as from 10 to 30 per cent. Standards for the control of material usage should be based on the best available methods of manufacture and provide a constant challenge to current practice.

It may be false economy to have parts manufactured outside by sub-contractors, unless specialized components or parts are needed for which manufacturing facilities are not available, even where the quoted price is less than the domestic cost of labour, material and overheads. The purchase of bought-out parts cannot normally be justified when relevant manufacturing capacity is available within the organization, unless the price quoted does not materially exceed the cost of material, labour and variable overhead expenses which would be associated with

their manufacture. In all cases where parts are bought outside, it is important to ensure the sub-contractor is so organized that delivery promises are unlikely to be broken, for failure to take the simple precaution of vetting sub-contractors has often resulted in idle overhead expenses being incurred by the main contractor.

There should be close co-operation between a manufacturer and his specialized suppliers. Adequate technical liaison is of great importance in securing satisfactory supplies of adequate quality from sub-contractors. The specialized producer is becoming increasingly important, for he can afford to install special-purpose plant which is often beyond the needs of more general manufacturers and, by concentrating his technical skill on a specialized range of products, accelerate the progress of his techniques and offer improving design, performance and quality at reducing cost.

In addition to establishing manufacturing processes, there is need to ensure their application as standard practice, whilst making provision for changing conditions and the enurement of cost reductions. In applying method study techniques to established processes and procedures, the first step is to select the field of work to be studied and ascertain the facts in ordered sequence. These must then be evaluated in order to enable the most effective method to be developed and installed as standard practice. Thereafter, regular routine checks are required in order to ensure that the action taken continues to achieve the desired results.

In determining and evaluating the facts, recourse may be made to the use of process charts to provide a diagrammatic representation of the field of study by recording the constituent activities in chronological order. For when a record is made of a job it is often noticed that unnecessary movements, transport, storage or waiting occurs. In an operation process chart only the main activities of operation and inspection inherent in manufacturing processes are recorded symbolically in order to give a general picture of the situation. Whereas an operational activity causes the characteristics or properties to change, the process of inspection merely verifies them in qualitative or quantitative terms. These activities may be designated thus :

Operational Process ○ Inspection Process □

Where greater detail is required, flow process charts may be used to picture the activities concerned in a process or procedure, thus indicating not only the activities of operation and inspection, but also those of transportation →, delay D, storage ∇, and distinguishing those activities which appertain to the worker from those which relate to the material worked. A further extension of the study may follow the development of flow diagrams, showing on a scale diagram of the area concerned the location of the various activities and the paths of movement covered by the particular processes or procedures. When the co-ordination of various activities is concerned, its extent may be portrayed by using multiple activity charts, which record the relevant inter-relationships on a time-scale. In other cases, models in miniature or string diagrams may be used. Other techniques are also available,

such as the use of Simo charts for very detailed records and the occasional use of film analysis charts and chronocyclegraphs for recording paths of movement. Usually, however, practical considerations do not merit the compilation of too detailed records, for when the fairly obvious savings have been made it is noticeable that subsequent savings generally follow the law of diminishing returns.

Work-Flow

Careful attention is needed in building design to ensure functional efficiency and flexibility of layout to cater for the considerable variations in space demands which usually arise during the capital life of a structure. Although the logical layout of a factory with modern plant does not of itself guarantee a high rate of productivity, it does provide the basis for high achievement. Spacious layouts, whilst attractive, are not necessarily efficient, because overhead expenses caused by excessive space demands increase costs per unit of output.

Checks of space allocations are a necessary part of method study to ensure not only that space is not being wasted, but that the plant layout permits work to be constantly on the move and permits material flow between entrance and exit without confusion or unnecessary travel. Continual vigilance is needed to eliminate unnecessary handling and movement, particularly cross-hauling, for improvements in plant layout and methods of handling can produce quick returns reflected in extra output and reduced overall costs per unit. The hidden cost of what is really unnecessary or ineffective material handling and movement often accounts for a high proportion of the conversion cost of many products without in the least adding to their intrinsic value.

In order to make production time more rewarding, method study should ensure that the geographical layout of the plant provides the right relation between incoming supplies and outgoing products ; that adequate facilities exist to receive, inspect and distribute incoming materials to stores and production areas ; that minimum overall travel is ensured by the adoption of the shortest direct routes between stores and production areas and that the plant layout is effective in providing free and ready access and minimizing inter-operation movements and handling. Lineal, " U " or " S " flow may be equally effective. Care is particularly desirable in the siting of heavy plant so that future developments are not obstructed.

Effective method study ensures the provision of adequate facilities for checking and transporting work so that the work flow is not impeded and the production interval is reduced, in order to avoid excessive costs and working capital investment. What happens between each machining and assembly operation provides a rewarding field for method study. Efficient material handling minimizes the aggregate length of the path of movement and the energy of transfer through well-planned layouts and sound mechanical-handling techniques. Use of the elevated platform type truck with suitably designed pallets for material handling is often an economical proposition which eliminates fatigue and reduces the proportion of indirect to direct labour. Where applicable, the mechanical conveying of in-process

materials avoids their manual transfer and multi-handling, particularly if production operations are carried out on the conveyor itself, whilst providing a measure of flexibility for changing production requirements. Here, again, adequate lifting equipment is needed for economical operation. A more recent development is the use of short-wave radio telephone sets with fork-lift trucks and electric goods-carrying vehicles, in order to increase the efficiency of internal transport by keeping drivers in constant communication with the transport manager.

The many advantages which derive from serialized production through the physical control of work movement by the correct siting of plant and the use, whenever practicable, of conveyors and chutes cannot be over-emphasized. The manufacturing interval is reduced so that more competitive delivery promises can be given and kept, because the progress of work through the plant can be more precisely determined. The elimination of manual work-handling between processes and operations not only economizes in shop labour and avoids the transfer of work to the wrong location, but it reduces requirements of working capital for work-in-progress. Reduction of work-in-progress and floor space makes for improved supervision, whilst an overall reduction in unit costs for fixed overheads arises through increased output obtained from the use of the freed area. Serialized production reduces the number of progress chasers, shop clerks, intermediate storekeepers and other indirect workers, because the need remains only to arrange for the input of supplies to the production line and the checking and receipt of output off the line. There is, also, a corresponding reduction of paper-work required to progress work through the plant. As a result of continuous work-flow, excess direct labour costs for waiting time, make-up pay and overtime premiums tend to a minimum, whilst operator efficiency invariably improves by reason of the psychological effect of having to feed the machine next in line. Excess costs of scrap and faulty work are usually low because work-in-progress does not pyramid between operations and there is no side-tracking of faulty work until pressure is exercised to rectify it. For the same reason, there is a reduction in the risk of obsolescence. Psychological advantages of controlled work flow are that certain preferences are avoided which temporarily boost production figures, but unbalance overall output ; for example, the preference by supervisors for particular types of work and by operators for " easy " work which increase their incentive earnings. Against these advantages are the amortization costs of altering existing layouts and providing mechanical handling plant together with any additional machinery and tooling, less economies in the cost of setting-up work.

Plant Utilization

A simple method of measuring plant utilization (see Figure 5) discloses the effectiveness of plant investment, indicates sources of inefficiency and appraises the result of action taken for its more effective use. Separate statistics may be obtained for each machine-tool and subsequently summarized according to plant type and/or plant location with appropriate sub-groupings according to interchangeability of plant.

Machine load programme							
Programme period.....				Machine group.....			
Total hours.....				Machine N ^o			
Estimated available hours.....							
Part N ^o .	Quantity	Hourly output	Set-up hours	Running hours	Total hours	Cumulative hours	Remarks

Machine utilisation record																			
Department.....										Machine.....									
Period.....										Group.....									
Week N ^o .	Day	Hours				Analysis of down-time										Weekly percentages			
		A Total	B Setting	C Working	D Down	Stoppage					No load								
						Machine breakdown	Tool breakdown	Waiting set-up	Waiting previous ops	Total	No work	No operator	No material	No power	No tool			Total	
	S																C	A	%
	M																B	B	%
	T																C	C	%
	W																D	D	%
	T																E	E	%
	F																F	F	%
	S																F	D	%
Totals																			
	S																C	A	%
	M																B	B	%
	T																C	C	%
	W																D	D	%
	T																E	E	%
	F																F	F	%
	S																F	D	%
Totals																			
Monthly totals																			

Fig. 5.—Plant Utilization Forms.

The incidence of idle investment may be emphasized by relating these figures to capital costs. Normally, the available hours should be based on the actual period for which the factory is open for production, with an allowance for authorized holidays and recognized breaks and with an addition for overtime hours applicable to machines specifically

affected. Available hours may exceed planned hours because of the absence of work or suitable orders, through the need to maintain spare capacity as a safety margin or because production is out of balance. Idle time lost for reasons other than shortage of work should be grouped under various headings, such as setting or change-over time, time lost owing to non-availability of the machine for various reasons specified or of the operator, tools or material. An accurate analysis of machine utilization can be made only with the co-operation of all concerned, but this is unlikely to be obtained if the information is used against them rather than helpfully. Automatic recording of the operating time of expensive and vital plant is an obvious safeguard in maintaining output.

Useful ratios may be derived from machine utilization statistics. The ratio of planned hours to available hours is a measure of the joint success of the selling and production activities, whilst the ratio of operational to planned hours is a measure of organizational efficiency in the factory. Operator efficiency is measured by the ratio of standard allowed time to operational time as determined by work measurement, so that overall utilization may be expressed as the ratio of standard allowed time to available time. For example :

Available hours	.	.	.	.	1,000
Planned hours	.	.	.	.	800
Idle hours	.	.	.	.	100
Operational hours	.	.	.	.	700
Standard allowed hours	.	.	.	.	750
<hr/>					
Planned hours	$\frac{800}{1,000} \times 100\% = 80\%$				
Operation hours	$\frac{700}{800} \times 100\% = 87.5\%$				
Planned hours	$\frac{750}{700} \times 100\% = 107.2\%$				
<hr/>					
Standard allowed hours	$\frac{750}{700} \times 100\% = 107.2\%$				
Operational hours	$\frac{750}{1,000} \times 100\% = 75\%$				
<hr/>					
Overall	$\frac{\text{Standard allowed hours}}{\text{Available hours}} = \frac{750}{1,000} \times 100\% = 75\%$				
<hr/>					
or $80\% \times 87.5\% \times 107.2\% = 75\%$					

Although these physical ratios do not tell the whole story until associated with financial indices, as exemplified later in the chapter on productivity measurement, a useful indicator is provided. Not only is it necessary to obtain the maximum output from each machine tool, but a balanced output is also necessary to avoid persistent "bottle-necks" which impede production, pyramid the volume of work in progress and hold up assembly work, thus congesting the production shops, sterilizing working capital and starving the company of revenues as the result of subnormal output. Work-studies should ensure that a close liaison exists between production and sales, for it is vital to secure an initial balance between the plant requirements of sales orders and plant capacities. In order to avoid persistent "bottlenecks", consideration should also be given to installing additional plant capacity at what would otherwise be "tight spots", even though the extra

plant is likely to have a subnormal utilization factor. In many cases, extra plant charges incurred avoid a disproportionate investment in working capital from excessive and unbalanced stocks and work-in-progress, whilst the additional output permits a wider spread of fixed overheads to the benefit of unit costs of production.

When similar machines are grouped together with specialized labour and supervision for mixed production, investigation should be made of the scope for using adequately trained semi-skilled labour, with the realization, of course, that cheap labour does not necessarily imply low-cost production. In mixed production, work should be passed through the shops in economical batches, as far as practicable chosen to avoid idle overhead expenses arising from plant down-time and recurring setting time caused by frequent change-over periods, as well as the consequent cost of uneconomic working capital requirements caused by prolonged production intervals. Where relatively small quantities of certain parts are required for use over an extended period, the single batch is indicated when hourly output rates permit their economical production at one run.

Periodical investigation is necessary of the practical economics of small quantity production, with the realization that extensive jobbing work requires a wide range of general purpose machines and equipment, together with a versatile labour force under skilled supervision, for economical manufacture in this case rests largely on ability to improvise and so avoid disproportionate expenditure on setting time relative to operating time. Although the overall plant utilization factor in jobbing work may be satisfactory, some hidden expense may arise from work being done on machines which are really too elaborate for individual jobs, but against this probably slight extra cost per unit of output may be set, in some cases, a saving in the cost of drawing office and progressing work usually required with mixed production.

As already emphasized, method study should ensure that plants are not inflexible where worthwhile savings can be secured in handling costs or in expediting work-flow. Plant layout is an important factor in the economics of material movement, but flow production is not necessarily associated with quantity. The cost of plant removals should not be unjustifiably criticized when, in fact, it is economical expenditure which ensures a greater volume of output and so reduces overhead costs per unit. There should be no hesitation in incurring removal costs where economies can be secured in this way. In this connection, flow charts can be usefully employed to picture the route taken by components being manufactured in a mixed production plant, in order to enable their flow and any impedances to be visually appreciated. Incidentally, it would seem that more attention could well be given in machine tool design to ensuring plant mobility for more effective deployment, because greater mobility would encourage short-distance plant movements in many cases which would obviate relatively long-distance movements of numerous piece-parts in production.

Method study should investigate the merits of realizing the industrial ideal of serialized production whenever practicable, even in mixed production plants. Even when applied to a limited range of products

required in quantity, line production is often more economical than batch production because work-flow becomes unidirectional and continuous, whilst quality maintenance is assisted because the risk of damage to products through handling is minimized. Costs are also more readily and precisely ascertainable than with batch production, as the product is processed as a separate unit. Costs of tool setting, transportation and progressing are reduced, thus economizing in working capital investment for work-in-progress. Margins of safety in stock levels may also be reduced, because a shortage of parts is sooner remedied. On the other hand, more plant capacity may be required than with batch production, but single-purpose plant only may be utilized and the benefits of greater output can easily outweigh the extra costs of depreciation and maintenance. Provided long production runs are possible with standardized materials and fairly standardized processes, machine use can be planned with little unused capacity. Where a more versatile type of operation is required than in a mixed production plant, extra supervisory cost may arise from the need to employ a higher grade of supervisor in order to ensure quality standards. Nor should the fact be overlooked that any serious breakdown of plant inevitably affects the whole line or unit concerned.

Preventive Maintenance

Maintenance expenditure is an investment which by keeping buildings, plant and equipment in a state of efficiency serves to minimize production costs through ensuring maximum availability of plant and satisfactory working conditions. An adequate maintenance policy provides an insurance against the expense and loss of production attendant upon machines breaking down, as well as the risk of a dilution in quality of product through lack of the requisite standard of precision in plant performance. The establishment of a simple procedure for the routine maintenance of such items as jigs, tools and gauges enables any necessary adjustments or repairs to be made after use and before their return to the tool stores in readiness for the next job. Assurance of their availability may be secured by arranging for repair orders to be issued by the production order office. Method study should ensure that the same careful consideration should be given to the economical working of maintenance services as is given to production itself. Satisfactory working conditions should be provided with adequate maintenance workshops and labour-saving equipment in the way of mechanical transport, handling equipment and portable time-saving devices.

Whatever arrangements may be made for maintenance work, it is important to ensure that their real cost is fully appreciated. This is often not apparent, particularly when the maintenance of plant and equipment is a decentralized responsibility of production supervisors, so that skilled craftsmen maintain their machines, tools and equipment, whilst centralized provision is made for site maintenance and the upkeep of essential services. Method study should ensure that hidden costs are not obscured through essential maintenance being neglected and plant being overloaded as a result of over-concentration

on output without proper regard for maintenance. In other cases, where maintenance is wholly or partly on a functional basis as a special service to be called in by production departments as required, method study should ensure that effective machine utilization is not impaired through the gradual acceptance of a reduced standard of mechanical efficiency. Gradual deterioration of this nature can be counteracted to some extent by scheduling periods of plant availability for maintenance and overhaul as the result of close co-operation between production and maintenance departments. Adequate instrumentation sited to guard against operational impedances and the provision of simple records tend to ensure satisfactory plant performance and pin-point persistent plant troubles which may often be remedied by minor adjustments to processes.

Method study should preferably aim to develop scheduled maintenance at least to the stage of planned maintenance in order that each unit of plant may be covered on a maintenance rota. Analytical estimating may be developed to enable the work content of maintenance to be reasonably assessed and planning and progressing to be more precisely integrated with the manufacturing programme. In continuous process plants, method study may provide economical justification for developing planned maintenance to the ideal of preventive maintenance concerned with plant upkeep, modification and replacement and the elimination of repair as ordinarily understood. Although the administrative work involved in pre-determining the preventive maintenance requirements for each and every item of plant is relatively expensive, considerable savings can arise from programming of this kind which succeeds in completely integrating manufacturing and maintenance operations and in avoiding capital expenditure on excessive stand-by plant. It is, however, necessary to avoid the temptation to keep in use plant which is really outmoded, or to "over-maintain" plant by expending on it more than would be required to defray the additional annual charges for replacement plant.

Motion Economy

A high rate of production requires not only the provision of suitable working conditions as to lighting, heating, ventilation, noise elimination and cleanliness, with proper arrangements of supplies, tools and equipment, but also acceptance of the principles of motion economy which avoid the use of basic elements of movement which are either retarding or negative of effort. Retarding elements of movement are those involved in changing direction, searching, selecting and pre-positioning, whilst negative elements are holding, delaying and resting to overcome avoidable fatigue. Motion study ensures the application wherever practicable of the ideal motion sequence which employs the fewest basic elements for the particular task and confines movements to their lowest classification, *e.g.*, by finger movements in preference to hand movements.

Maximum performance is approached when tasks are simple and straightforward so that natural rhythmic movements are developed which become subconsciously automatic in their operation. The

rhythm and automatism so essential for achieving high outputs without fatigue develop easiest when both hands begin and complete their movements simultaneously, with arms moving oppositely over symmetrical paths to maintain a balanced state of body and each hand working on its own side in order to avoid muscular exertion.

As the human frame has limitations as well as potentials, motion study should ensure the adoption of satisfactory working heights and positions required for minimum body movement. The introduction of simple jigs and fixtures for locating and setting work is also desirable whenever appropriate, together with arrangements to reduce manual weight-lifting, for example, by adopting a sliding rather than a lifting action in movements. The augmented use of more "horse-power" per worker is also desirable whenever manual toil can be eliminated and output per man-year increased in this way. Whilst it is easy to appreciate that the heavier the job the slower is the speed of movement, the fact is not so readily realized that a complete body movement gives a slower working speed than when movements are limited to arm and hand at bench level. As sudden changes of direction keep muscles in a state of tension and take some time in starting and slowing down, motion study should ensure that movements of this kind are continuously curved, rather than linear motions requiring sudden changes of direction, in order to allow arm muscles to relax during part of the travel. Attention should also be given to the simultaneous use of foot movements in appropriate cases.

Quality Assurance

An important function of method study is to assure the desired standard of accuracy, workmanship and finish as defined by the design specification, by keeping under continual review the quality aspect of design, production and consumer acceptance. Data collected from inspection sources should be analysed and evaluated in order to influence design, plant maintenance, buying, training of operators, plant loading and other related activities. Customer complaints and service reports also provide valuable information.

An adequate yet economical programme of quality assurance is an aid to increased productivity, for its incidence in the factory of avoiding unnecessary work and/or reducing defects and wastage not only saves expense and increases effective output, but it permits of more realistic planning and progressing, improves work-flow and, not least, encourages good workmanship and pride of achievement. Consumer relations are also enhanced through satisfactory performance of the product, whilst policy-making in respect of guarantees and after-sales service is facilitated, for if quality is adequate the provision of service is manageable and economical.

Quality maintenance requires the intelligent selection during design of dimensional tolerances and/or process specifications, the maintenance of satisfactory working conditions, adequate training and supervision which ensures satisfactory workmanship, efficient tooling and satisfactory plant performance, with the addition of efficient inspection routines. Clearly, quality assurance is not confined merely to the

routines of acceptance and inspection or viewing. Defect prevention rather than fault finding is the function of quality control. Where production difficulties are anticipated, pre-production experimental work designed to avoid the incidence of defects is usually economical.

As lack of quality control over incoming supplies is often the cause of excess production costs, it is important to avoid false economy in this respect. However, cost savings may be secured in the inspection of incoming materials by maintaining close liaison with suppliers in order to avoid unnecessary duplication of inspection routines, control the flow of deliveries and secure rapid contact in the event of faulty supplies being made. Close liaison can avoid excessive inspection costs in many cases, because input inspection, unlike in-process inspection, has to be done without knowledge of the order in which the goods were made. The submission of reliable quality reports by suppliers is not only a valuable means of promoting confidence and good will, but may enable economies to be made by the purchaser adopting agreed sampling techniques, on the understanding that if sampling inspection indicates a subnormal quality level, the whole consignment is returnable for screening and correction at the supplier's expense.

Work-flow is facilitated when manufacturing processes and inspection routines are integrated by their complete specification in job layouts issued by the production engineering department. In-process inspection should be established with the knowledge that inspection applied incorrectly as to time or place may cause avoidable wastage through the rejection of partly processed or completed components and assemblies, when earlier inspection would have disclosed defects and so avoided subsequent work. Accordingly, relatively greater expense may be justified in the earlier stages of manufacture where numerous processes are involved. The closer inspection is to production in timing and location, the more effective is likely to be the control. Whereas centralized inspection facilities permit the use of specialized equipment and personnel, floor inspection is often preferable, except where more detailed tests are required, for in this way unnecessary handling and transport costs are avoided, whilst the production cycle-time and the volume of work-in-progress is reduced. In addition, closer liaison obtains between inspector and operator, so that the prospect of future errors is minimized and current defects are remedied without delay. As it is axiomatic in controlling a manufacturing process to ensure that it begins properly, the duty of "first-off" inspection may fall upon the tool-setter. When each workman is also trained to inspect his own workmanship as far as practicable, inspection economies are secured and pride of achievement is encouraged. However, it is usually considered preferable for first-off inspection to be the duty of the inspector as an expert in measurement and the correct interpretation of drawings, in order to ensure uniformity of quality standards throughout the factory. Patrolling inspectors who ensure that the quality of output continues satisfactorily provide a reasonable check, avoid unnecessary inspection work and expedite work-flow, except in cases where for technical reasons the job layout necessarily routes work for inspection to a central control room. In the case of line

production, however, fixed-point inspection avoids remoteness in time or space between manufacturing and inspection processes.

Method study should examine the practical economics of mechanizing inspection routines in order to realize the ideal of synchronized inspection and immediate reoperative action. Equipment has been developed for insertion into the production line which will constantly check work quality and feed back instructions to cause those machines which are producing defective work to adjust themselves. When defective work is rejected, due consideration should be given to the cost factor in deciding whether to rectify or scrap. Defective work should preferably be salvaged in order to minimize loss where this course is technically justified. In the further interests of cost savings, reports should be made on work which is not strictly to drawing or specification, in order to decide whether or not acceptance is possible and the extent of any rectification work entailed, whilst ensuring that concessions permitting departures from drawings or specifications are strictly controlled.

Final inspection is completed with the functional test which ensures the satisfactory performance of the product. False economy in the cost of final inspection should not be permitted, for the reputation of the company depends on the satisfactory performance and acceptance of its products. In particular, congestion in the final inspection department should be avoided by the provision of adequate facilities and staff in order that peak loads do not arise there which entail the maintenance of excessive despatch and transport facilities and cause prolonged delays, as the final product is only one stage removed from its conversion into cash at the bank.

As inspection is concerned with variability and as statistical methods deal effectively and economically with the arithmetic of variables, the application of statistical sampling techniques to quality control can be advantageously applied in repetitive or process manufacture to give results equivalent to full gauging at a fraction of the cost. Indeed, the increasing volume of production in many factories limits the practical application of full inspection and promotes the development of sampling techniques.

Statistical quality control involves sampling checks at a pre-determined level of quality being made *in situ* during the progress of each operation and remedial action being quickly taken to avoid excessive scrap. The sampling checks require the measurement of four or five pieces or the gauging of, say, ten pieces at intervals and the charting of results on a vertical scale representing variations along a horizontal time scale. Limits or control lines representing chance or permissible variations are calculated from previous test measurements. It is only when readings fall outside these control lines that remedial action is required, for practically all the measurements should lie between the lines, whether the average, range or fraction defective is the measure plotted. Control lines depend upon the size of sample, for the risk in sampling of accepting inferior quality can be controlled at any desired level by choice of sample size. Randomness is essential for effective sampling in order to enable the various distributions to be

known and to predict generalities. Charts for counting may be used instead of charts for measurement, by classifying items inspected as effective or defective and regarding the proportion defective as measuring the quality of the whole. This procedure of using fraction-defectives or "p" charts is appropriate where precise measurement is inapplicable, as in measuring visual defects.

The cost of applying statistical quality control depends partly on the extent to which consistent quality specifications are maintained, for, although the time saved by eliminating total inspection is available to inspect a small quantity more thoroughly, defects must be sorted if the chart indicates lack of conformity with the quality set. Quality charting is beneficial only if action is taken when its necessity is indicated, but there is no need to stop the plant when chance variations occur within the accepted working variability of the process as disclosed by the control lines. The fact of the chart being placed *in situ* at the working point is a stimulus to quality production and good workmanship. If faults are indicated, the fact that the operator does not continue to waste his time makes for good industrial relations and avoids excessive scrap. Quality charting also tends to prevent the inordinate speeding up of workers and the sacrifice of quality at the expense of output.

Procedural Efficiency

The assurance of procedural efficiency is an important aspect of method study, for an effective works system provides the basis for ensuring co-ordination of the total activities of all resources employed in man-power, materials and capital assets, through the processes of engineering design, development, job specification and layout, tooling, manufacture, inspection and test until shipment of and payment for the job. Although the best management tool is undoubtedly a keen pair of eyes and a trained brain, the essential need to ensure unflinching control and the complete co-ordination of multifarious industrial activities requires the accurate, regular, prompt and rapid communication of essential information to and fro between points of control and directly productive activity. Except in the smallest establishments, the communication of information depends mainly upon the provision of efficient paperwork systems and routines, for as accuracy and speed of information are vital factors in the search for greater productivity, as much need exists to plan paperwork routines as there does to plan production itself. In the absence of up-to-date information, a chronic position may arise before the need to take remedial action is realized. A system is, of course, merely a means to an end and carries no guarantee of success, for the satisfactory fulfilment of its design depends on the personal qualities of the people who operate it. Paperwork is obviously no substitute for personal contact and influence. It is important, therefore, that its execution should be entrusted only to carefully selected and properly trained staff. As facts and figures on paper can be taken too far and, in any case, are subject to clerical error, the problem is to decide the level and place

at which recourse to the evidence of quantity or value becomes uneconomical.

Superfluous paperwork and unnecessary procedures do nothing except obstruct and delay the completion of essential work, whilst control systems which present pages of incoherent data to factory personnel are not only uneconomic, but can be exceedingly irritating to the recipients. Incomplete, inaccurate and misleading information is even more disastrous in its effects. For example, ineffective buying routines permit late deliveries of materials and components which impede production, cause excessive waiting time and low plant utilization, and thus increase overhead costs per unit of output. Lack of established priorities encourages foremen to satisfy the demands of the more insistent or favoured work-chasers and permits the best paying jobs from the piece-work point of view to be run off whilst short-run jobs accumulate. Manufacturing shortages caused by ineffective programming and progressing reduce the efficiency of assembly lines and so reduce effective output, whilst liquid resources may become strained because extra working capital is required to finance an excessive volume of work-in-progress. Other procedural inefficiencies also tend to produce similar results.

The examination of procedures with a view to their simplification, without impairing their effectiveness, the discarding of duplicate records, the consolidation of similar forms and the re-routing of departmental work-flow eliminate needless paperwork. The constant review and analysis of all forms and corresponding paperwork routines is an essential function of method study in avoiding the incidence of unnecessary and ineffective overhead expenses and in expediting administrative procedures by curtailing paperwork and streamlining routines. In particular, there is need to counteract the continued compilation of information for which executive time is not available either to absorb or effectively peruse. When the cost of extracting information cannot be justified, underlying procedures should be eliminated, for the only value of paperwork is to facilitate administration and control. Nevertheless, it is important to avoid false economy in the extraction of control information that impairs its effectiveness in use.

Method study should approach the problem by putting searching questions which ask, "What is the information required, who wants it and why?" "When and how often is the information needed and who is to supply it?" "What form should the record take for effectiveness and what is the justification for each entry?" "How long should the records be held and what filing arrangements are requisite?" When method study leads to the careful preparation of comprehensive standards of practice, executive time ceases to be wasted in needless debate as to proper methods of routine procedure. The interdependence of the various departments of an industrial undertaking necessitates that paperwork routine should be established comprehensively rather than departmentally in order that paperwork is co-ordinative in its application. Paperwork efficiency depends upon the design of suitable forms which are obvious as to their purpose,

foolproof as to their completion and economical in use. This requires a clear conception of purpose, an accurate assessment of procedural costs and values and the elimination of irrelevances. Care should be exercised to reduce basic operations to a minimum to safeguard the chances of error arising and to view the relative sequence of operations. As far as possible, operations and routines should be arranged so that the emergence of peak-loads is avoided, as these not only make for reduced efficiency, but result in delays arising in the compilation of final data. For example, it may be preferable where numerous items or allocations are involved to use unit forms and to sort these at their source, rather than to use composite forms which subsequently require breaking down by tagging methods into unit data, and so raise a central clerical and sorting problem. Sorting at source is often economical owing to the limited use at each source of a wide range of possible allocations. Where there are only a few items or allocations altogether, it may be preferable to use composite forms and to deal with their analysis centrally, either by the exhaust or the peg-board method. In all cases, it is important to consider dealing with frequently recurring items differently from those which occur only occasionally.

Unnecessary multiplication of copies results in excessive filing and storage costs, apart from taking up valuable space. In many cases, too, it leads to unnecessary clerical work and expense in the compilation of data already available in other places. Consideration should be given to security of information and records. For example, copies of drawings may be stored away from drawing offices on transparent material, so that, in the absence of master drawings, they can be quickly reproduced without the need for tracing. The use of micro-films and viewing equipment serves not only as a valuable security measure against loss of, or damage to, essential records, but it has also the undoubted advantage of being space-saving, compact and convenient. Savings in the cost of filing equipment and storage accommodation through the use of micro-film records need to be experienced to be fully appreciated.

The importance of a simple yet comprehensive system of coding cannot be over-emphasized as a means of facilitating control with a minimum of essential paperwork and the application of mechanical aids. Coding is an essential pre-requisite to the effective introduction of punched card accounting and statistical machinery. Unless materials and components are properly classified with codings which indicate their nature and not merely their sequence and lead to the establishment of clear records, there is no means of knowing the true position. Classification of components by name is usually fortuitous and misleading, for it is not uncommon in the absence of adequate classification to find similar components in stock which could be made fully interchangeable. Nor is it unknown for production to be stopped for lack of materials or components in stock at another location under a different name. The ideal material code brings like items together by its use as a means of stores location. Indeed, one has only to experience the operation of heterogeneous and incomplete codings in a large factory to realize the considerable savings in time and cost which flow from

the adoption of a planned and comprehensive system of coding. For time and effort devoted to the establishment of a satisfactory coding system is economical in avoiding unnecessary capital expenditure in storage facilities and unrewarding investment of working capital in duplicated stocks of materials. Moreover, a comprehensive system of coding which groups together similar items, whilst making provision for future additions, permits the ready ascertainment of price level changes, quantity usage statistics and other data necessary to effective management. Incidentally, the adoption of a uniform basic standard of measurement is desirable, *i.e.*, all weights expressed in lbs., all lengths in feet, or otherwise, as may be appropriate to the circumstances concerned.

Careful consideration should be given to the arrangement of data. For example, it may appear economical to prepare and issue assembly lists of piece-parts in assembly order sequence. On the other hand, their arrangement in numerical sequence may facilitate stores issue and clerical work, so that a strict numerical sequence may be adopted with the addition against each item of the assembly sequence. Incidentally, although the common practice is to handprint part lists, speed and economy may often be secured by the use of typed master-copies on stencils.

The arrangement of drawing numbers so that parts of the same type fall together within the same range of numbers is a useful safeguard against actual and near duplication of parts. When code numbers of drawings and parts are identifiable in relation to their end-product, the preparation of production and costs data is facilitated. A definite control of the issue and distribution of drawings is essential, as well as regular checks to ensure that all drawings are kept up to date. Out-of-date drawings must be quickly withdrawn and revised drawings substituted if expense and delay are to be avoided as regards incorrect materials, tooling and unusable parts. Incidentally, it is generally considered to be more conducive to accuracy and, therefore, more economical in the long run, to release a new copy of the production drawing with each production order.

Tools may often be conveniently identified with their relative piece-parts by adopting an appropriate system of coding. This facilitates the comparison of capital and maintenance costs of tools individually and on a tool-class or product-group basis. A comprehensive system of machine tool codes which identifies the main characteristics and capacities of each machine tool facilitates plant loading and the use of substitute machine tools when overloads arise. The preparation of machine tool utilization statistics is also simplified and expedited.

Method study should encourage the provision of mechanical devices and photographic techniques in dealing with clerical procedures in order to obtain, wherever practicable, the advantages of speed, legibility, greater accuracy and the simultaneous preparation of several processes. Progressive totalling and balancing should be adopted to avoid peak loads and provide up-to-date information. The use of pre-printed data may be adopted to eliminate repetitive clerical work, avoid clerical error and expedite the preparation and issue of working

instructions. The use of pre-printed standing information in conjunction with high speed punched-card machinery is often essential in speeding up the flow and analysis of production information. Indeed, if information produced is to have any practical use, its flow must be more expeditious than that of the production processes which it pictures. Although machines do not possess the flexibility and versatility of people, nevertheless their scope is adequate to their purpose, although trained operatives are usually required. The occasional need for the services of outside mechanics gives rise to some inconvenience and delay, particularly during the initial period after machines are installed, when inevitable teething troubles arise, a contingency which, although usually well looked after by the better organized suppliers, should never be under-estimated. The proximity and availability of after-sales mechanical service is clearly very important in ensuring satisfaction to machine users, and provides an argument against having mixed machine installations, as also does the fact that machine operators require specialized training and are not usually interchangeable.

Although it is uneconomical to acquire machines without the assurance of a reasonable volume of work, it is equally unwise to keep plant so fully loaded that occasional peak conditions impede work-flow. The relative inflexibility of accounting machines and the need to keep them operating, emphasizes the need to maintain a regular flow of work and to secure the accuracy and precise timing of incoming information. The need to use specialized operatives emphasizes the necessity to standardize as far as possible on machines of general application.

The need for work-flow and accuracy requires the separation of manual and mechanical processes in such matters, for example, as the pre-selection of account cards by off-setting cards in their files, stuffing posting media with relevant cards, or by pulling cards from files for posting, so that machine operatives are able to maintain high rates and volume of output through maximum machine utilization. Such arrangements also facilitate visual checking, for most machines are unable to relate the data to be posted with their appropriate account cards.

An appearance is often given that mechanization of clerical routines provides the only assurance of substantial savings in clerical effort, whereas, in fact, the position is often that equal savings could be secured by improving existing clerical methods. Therefore, before assessing the benefits of mechanization, method study should determine the savings obtainable from a reorganization of existing routines on a manual basis.

A liberal use of manual aids in the way of simple adding and calculating equipment is economical in avoiding monotonous routines, limiting error and expediting work-flow. Indeed, the extra annual cost by way of depreciation in the generous provision of mechanical aids makes little percentage addition to establishment costs and may well result in actually decreasing overall costs by promoting staffing economies. With the use of the more versatile and expensive machinery

requiring specialized and trained operatives, it is usually more economical to group similar equipment so that maximum advantage may be obtained from its use, provided, however, that the efficiency of those who use the information is in no way impaired.

The use of centralized machine pools, in the way of typewriting, calculating and duplicating services, often results in the cancelling out of sectional peak loads with an improved general load factor and has the merit of ensuring greater control over the quality of output through specialized supervision. Pooling also has advantages in staffing, for facilities may be found for a gradual inflow of trainees to replace wastages, and staffing arrangements may ensure that normal absenteeism can be absorbed without the dislocation which often arises in small dispersed units. Centralization, of course, carries some disadvantages, for, unless properly organized, it may lead to the undue movement of papers and temporary inaccessibility of records, causing inconvenience and delays on the part of busy executives. Tact and discretion are vital attributes of the successful supervisor in dealing with assumed priorities.

There is a wide variety in the available choice of office machinery and equipment, and no real difficulty normally arises in making a suitable selection, which may be influenced, apart from the general suitability of the equipment, by considerations of price and delivery, as well as by the need to avoid building up a mixed installation for performing common tasks. The choice between simple and versatile machines may show the advantages of multi-purpose plant as being more apparent than real, for the simultaneous preparation of several records may considerably slow down the speed of the operator, although a high degree of accuracy may be secured. Selection is normally more difficult in making a decision as to the relative merits of punched-card machinery and self-contained machines of the multi-register type. The use of digital computers in management accounting is going to have a profound effect not only in eliminating clerical routine but in providing "up-to-the-minute" control information. Such computers are already available to the larger organizations: operating with a semi-mechanical input from keyboards, tapes and punched cards; an intermediate electronic processing equipment working at phenomenal pulse speeds on the binary system of numbers using the root of two (instead of our usual root of ten); and a semi-mechanical output working on the teleprinter system. The field of application of electronic computers will rapidly extend with the mass production of transistors, the successful development of a reliable magnetic film-tape store in place of punched cards and the gradual removal of mechanical limitations to speed and flexibility.

Self-contained multi-register machines permit the simultaneous preparation of various records; for example, payrolls, earnings records and pay envelopes, involving multiple operations such as printing, selecting, adding and balancing in quantity and/or values, as required. Such machinery has the advantage of being complete within itself and flexible enough to cater for most requirements of an accounting nature by the simple adjustment of set-up through the use of standard type-

bars. As in the case of simple accounting machines, their speed of operation is limited by the manual speed of the operative and additionally by the multiple nature of their performance. Some machines of this kind also carry a typewriter keyboard and are arranged for effecting automatic multiplication and division, which is so useful for such tasks as pricing requisition notes and posting stores accounts. One of the latest multi-register machines, which, however, does not incorporate either a typewriter keyboard or multiplication and division, is extremely simple in operation and permits automatic change-over from one kind of job to another, with a choice of four different set-ups from one control bar. The ready replacement of differently designed control bars permits further choice. For example, one control bar only is necessary for cost records, stores ledgers, purchase ledgers and sales ledgers, whilst the number of adding/subtracting registers incorporated into the machine is arranged to meet the special requirements of the user. The machine also incorporates a wide range of symbols, so that the absence of a typewriter keyboard is not usually missed.

Punched-card machinery operates vertically in the sense that its full use may require the serial application of several different machines in the processes of punching information into unit cards, check-punching, verifying, interpreting, sorting, multiplying and dividing and tabulating by printing and adding or subtracting. Each card form, designed to its particular purpose, requires the use of separate connection boxes in order to relate the coded information to the printing mechanism, although in one make, flexibility is obtained by the use of adjustable connections, which is useful during development and in setting up special jobs.

The problems of card punching may be dealt with either centrally or at dispersal points. Punching is centralized when the coding of documents is likewise arranged, although arrangements may be made to code-mark cards at dispersal points by using dual-purpose cards which eliminate human error at the punching stage through the use of an automatic mark-sensing punch. If the local application of codes is limited, it may be convenient to disperse punching operatives, although where coding is detailed there is usually need to limit error by passing all documents through a central code-checking section. Limitation of expense generally requires the centralization of equipment, so that where the plant is used for various purposes, such as costing, piece-work earnings assessment, machine loading, production control, general accounting and statistical work, the difficult problem of priorities arises and the hazard of dislocation caused by the breakdown of any machine in the series. Of course, additional machines may be installed in the series when the volume of work so requires. Careful handling of cards is needed, a factor which is often decisive as regards the centralization of coding and punching operatives.

Apart from semi-automatic punching operations, punched-card machinery works entirely automatically and at very high speeds, which makes it invaluable for dealing with a large volume of routine work. In addition, the wholesale elimination of other routine clerical work, as well as that normally dealt with, may be secured by the use of

various subsidiary machines ; for example, the reproducer automatically punches a new set of cards from an existing set, the selective sorter selects certain cards from the file, whilst the collator automatically matches two sets of cards, however numerous they may be. Another advantage is that the equipment as a whole in relation to work volume requires less labour than with other types of machinery, owing to the need, apart from punching operations, to do no more than set up and feed the plant.

Programming and Production Control

Particular aspects of procedural efficiency are concerned with production administration, which through the processes of programming and production control—scheduling, order control, material control and progressing—relates sales requirements to manufacturing capacities and synchronizes deliveries with requirements. Practical problems that arise vary according to the type of industry, method of manufacture and scale of production ; but, whatever may be the circumstances, method study should ensure that all these procedures remain suitable to their purpose and are effective in securing their objective. There should be a determination to provide an organization capable of meeting all eventualities and to secure continuity of production at a satisfactory rate of activity.

Programming.—The main objective of programming is to relate requirements and capacities with sufficient flexibility to satisfy the emergence of unforeseen circumstances and enable production to proceed unhindered. Indeed, a well-devised and skilfully operated planning system usually reduces the cost of progressing, as effective planning makes progressing largely automatic. Flexibility in programming is important, for much of the work of scheduling is in fact rescheduling in order to meet the demands of changing conditions. Method study should ensure that programming is comprehensive in scope and not merely confined to production shops, for controlled and co-ordinated work-flow is the basis of attaining efficiency in all industrial activities, whether of an engineering, manufacturing or administrative nature. Matching sales orders with capacities so that delivery dates are maintained is the basis of securing industrial efficiency and customer satisfaction, for unbalanced capacities render capital and revenue expenditure unprofitable, whilst failure to fix realistic delivery dates leads to recurrent improvisations which cause further disorganization and impair customer relationships.

No hard and fast rules can be formulated for programming, because widely varying circumstances make it essential to tailor the system to suit each particular case. For example, policies of complete or partial standardization have a considerable influence on the particular programming and production control system. In all cases, successful programming requires accurate information regarding sales orders, sales trends, work-in-progress, stocks of materials and components, as well as realistic appraisals of capacities, operations and times involved. Where products are few and standardized with orders executed in strict rotation, little detailed information on prospective operations may be

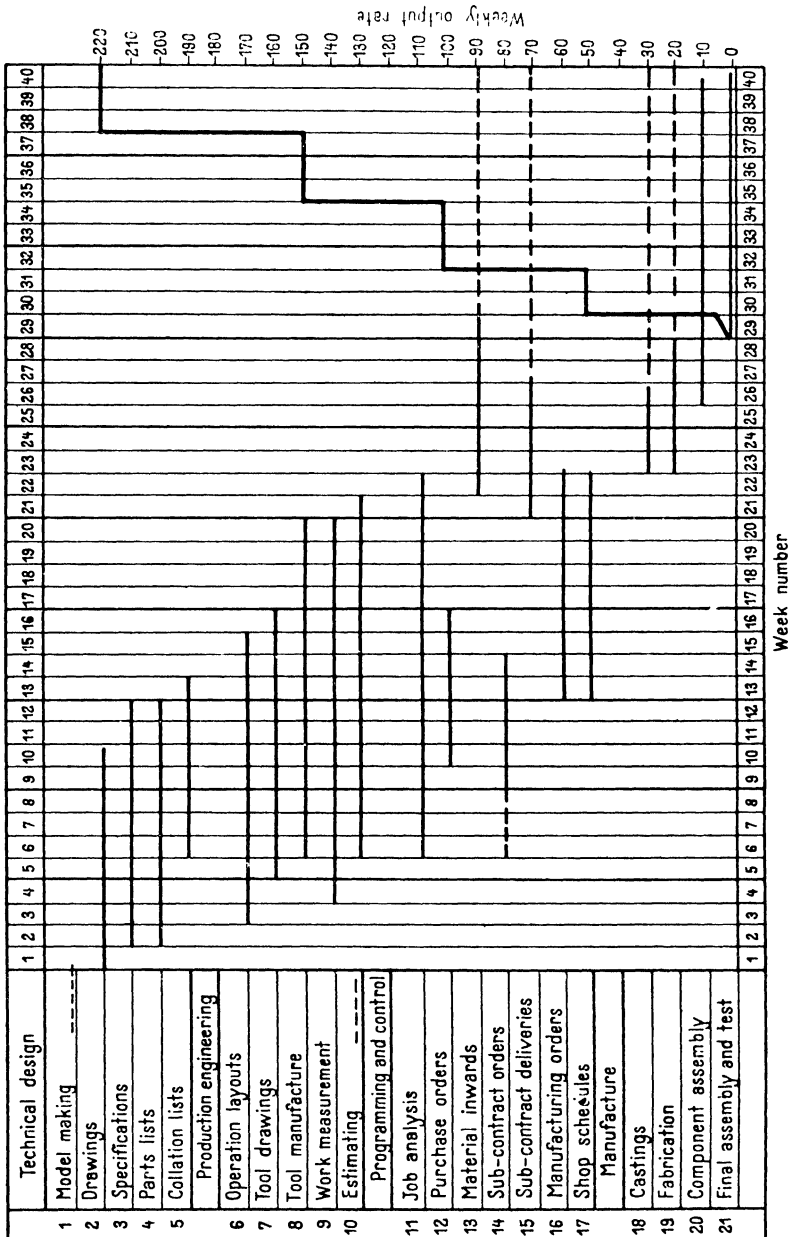


Fig. 6.—Pre-production Chart.

needed, whilst a few elementary charts may be used to express the programme. At the other extreme, in mass production plants, pre-production charts (see Figure 6) are necessary to establish interrelated completion dates for all pre-production work on new models, so that capacity and output targets can be agreed by departmental managers before the overall programme is confirmed and detailed work schedules

are prepared. In many other plants working on batch and line production, dissimilar products are manufactured which make different and variable demands on each department's capacity, whilst delivery dates have to be agreed with customers and kept if their goodwill is to be retained. In all cases, the volume of incoming orders must be regulated sooner or later to available capacities, or capacities must be adjusted to meet prospective demands. In particular, the orderly and efficient production of complex products is impossible without established priorities, completion dates and production intervals.

Particular co-operation is needed between production and sales functions, for much can be gained by the sales department using its specialized knowledge of market trends to forecast ahead in order that adequate provision can be made for obtaining materials in short supply, training labour, tool-making and plant capacity extensions in appropriate cases. For sales and production are complementary and inefficiencies on either side will usually have repercussions on the other. It is important for economical working that schedules once fixed should be as far as practicable definite in their operation and not subjected to interference, for decreased productivity results from unnecessary interruptions of production runs to satisfy the demands of other sales orders and leads not only to repeated machine setting for the same job ; but, more severely, to loss of work-flow and the accumulation of work-in-progress.

If the order load measured in value or volume does not reasonably reflect capacity demands so that recourse to man-hours or machine hours becomes necessary, it may be segregated into product groups. A representative product or products may be selected for each group and used for assessing the order load in terms of production periods, which may be compared with delivery promises. Periodical checks of departmental loads are also necessary to ensure balance unless each product or group of products makes similar demands on departmental capacities. These departmental surveys are necessarily more detailed than those made overall as recourse is needed to operational details specified on job layouts. Invaluable assistance may be obtained from the use of punched-card machinery in dealing with the mass of data which has to be analysed.

Complete centralization of programming tends towards a bureaucratic control by its rigid emphasis on the detailed execution of plans and, in the larger companies, demands a higher degree of co-operation than is practicable. It restricts the freedom of production supervisors to meet the impact of unfavourable local circumstances without delay and so limits their effectiveness. On the other hand, complete decentralization is usually impracticable for the attainment of global targets because of the absence of an adequate degree of co-ordinated effort. A preferable arrangement is to centralize through a master scheduling office the preparation and progress of overall programmes on a delivery period basis, to schedule sales orders accordingly for each manufacturing period and to maintain effective control by daily progress reports relayed from decentralized planning and progressing activities. The extent of the programming calculations and the number of decen-

tralized control points to be established depends upon the variety, scale and relative complexity of the manufacturing orders, processes, cycle times and plant layout. The master schedule thus becomes the regulator of the planning function in determining the practicability of all proposed work schedules and in controlling the flow of work. In order to ensure that delivery promises will be kept, the master schedule must be realistically based on accurate information regarding requirements, resources and methods, with defined priorities and coupled with efficient load planning based on work measurement standards. Guidance is necessary regarding the degree of priority except only in the simplest cases. Adequate contingency allowances are also essential so that programmes can be completed within due dates and reliable output forecasts and promises made.

Final acceptance of the master schedule necessarily depends upon proof of its financial effectiveness, for which purpose its contents must be translated into financial terms. The master schedule as finally approved should be incorporated into the financial budget, so that the processes of master scheduling and budgetary control are integrated to secure the economical matching of the programme with available resources. It must not be assumed, however, that the master schedule is a completely static document, for it is being continuously affected by incoming orders and outgoing deliveries. Accordingly, its revision is periodically required as circumstances dictate, so that the working schedules released for each manufacturing period are completely integrated with preceding and subsequent working schedules. Schedules based on the number of production days are clearly preferable to those based on week numbers or other periods which do not discount holidays.

Whether or not there is a master scheduling office, the accumulation of forward commitments in the apparently simple form of a list of orders by customer and/or product should be analysed to produce a realistic plan of work for each area of activity concerned—engineering design, development, production engineering, tooling, buying and manufacturing. The effectiveness of the plan requires its expression in such a way that its objectives are clearly understood. This may be facilitated, in many cases, by dividing the production programme into four periods: period one being a firm programme not subject to change; period two comprising a semi-fluid programme to cater for manufacturing changes to any particular item within a product group, so long as the modification does not affect the total requirements of the product group as a whole; period three comprising a fluid programme in which any changes may be made; and period four comprising an anticipatory programme to visualize the position regarding forward commitments.

Job Analysis.—When the drawings, operational layouts, assembly and collation lists for each product are finalized, the production scheduling section may compile job analysis sheets (see Figure 7) for each sales order or batch of related sales orders as a preliminary to the issue of detailed shop programmes, purchase orders and manufacturing orders. Recourse in this process will necessarily be made to statistics

especially where there is a variety of complex products. Job analysis sheets may be designed to disclose, for each product group, the weekly product requirements of each customer, with weekly requirements of sub-assemblies, fabricated parts, castings and raw materials in numerical code order so that common items are grouped together. Where production requirements are not allocated to definite customers but are placed into stock, the schedules may be simplified accordingly. In repetitive manufacture involving a variety of orders, stock authorizations may be released as a means of promoting economical production runs in anticipation of standard requirements, but in this event close control is required to avoid excessive stocks from accumulating. The degree to which assembly lines will supply a continuous flow of end-products depends primarily upon accurate job analysis and realistic scheduling, for the schedules determine when each part should be made and when each set of parts should be put together in the form of sub-assemblies and assemblies. Some measure of flexibility is indeed essential if effectiveness is to be maintained in spite of unforeseen changes arising, such as unexpected absenteeism, tooling troubles, machine breakdown or material shortage.

The standard manufacturing interval for each assembly is the sum of the pre-determined times for an economical batch quantity to pass through all stages of manufacture from the time of withdrawing the raw material from stores to the time the end-product is made. The time cycle of the batch may be ascertained by aggregating the standard time periods involved for tool-setting, fabrication and assembly with the addition of reasonable allowances for inspection, checking and movement. The actual time cycle is invariably longer than the relative standard cycle because of the time consumed in additional handling and movements arising from faulty workmanship, materials, plant, tools or organization. Method study devoted to making periodical comparisons between standard process times and actual manufacturing intervals per unit of output can be rewarding through pin-pointing sources of recurrent inefficiency and providing for their elimination or correction.

Shop Scheduling.—Shop programmes (see Figure 7) need not necessarily be issued to each separate production shop, for often co-ordination is improved when shop programmes are established for each working area, *e.g.*, foundry, presswork sections, machining sections, sub-assembly groups and final assembly sections. It seems that programmes of plant loading have a tendency to fail when machines are grouped by make and model regardless of their interchangeability, either wholly or partially, and when reference is not made in sufficiently precise terms to their availability. Shop programmes should be supported by feeding lists (see Figure 7) indicating the quantity requirements of parts for assembly in accordance with the shop programmes. These feeding lists provide the stores with a document which facilitates the collection of parts and their delivery to the appropriate assembly section. Another copy enables the progress department to allocate assemblies in order of priority and anticipate shortages through close liaison with sources of incoming supply and stock levels of parts. In this way,

anticipated shortages resulting from manufacturing delays, scrap or rectification work may be remedied or the assembly programme may be rearranged in consultation with the scheduling department if remedial action is unlikely to be effective in time to avoid holding up assembly lines. It is good standard practice for the purchasing department to advise the scheduling office regarding delivery periods for materials, in order that schedules of material requirements may be prepared with sufficient lead-time to meet current delivery conditions. It is also good practice to indicate forward requirements to selected suppliers, in order to enable them to plan in anticipation of future sales. Another copy of the feeding list is sometimes used for costing purposes, but is unnecessary where a system of standard costing is in use.

Material Control.—Reliable statistical records relating to plant utilization and material control are essential for fixing realistic shop programmes. As the subject of machine utilization has already been covered, it remains to consider the material control function before dealing with the issue of manufacturing orders and their progressing. The function of the material control section (see Figure 8) is to make available the correct quantity and quality of material and components as required by the production programme so that stocks are a minimum, yet adequate as to location, timing and allocation. This involves indenting for purchases in accordance with the scheduled programme, maintaining records of movement of all material into and out of stores, issuing raw material required for fabrication and arranging for deliveries to assembly shops in accordance with feeding lists. Control is centred in the stock record grouped to cover raw material, purchased parts, manufactured parts, sub-assemblies and assemblies, to show the current stock, the forward position and the history in each case.

Efficient purchasing arrangements are an essential preliminary to economic stock control. Unnecessary expense is incurred when purchases are made without regard to competitive prices or to manufacturing schedules or without sufficient regard to quality or when cash discounts are lost through late payments of suppliers. Incorrect buying through lack of control with production shops usually causes overstocking or an unbalanced stock position, and often results in the obsolescence of stocks through age. Close control over purchase commitments is preferably exercised by the strict authorization of expense before it is incurred. In order to maintain a continuous pressure to obtain supplies at lower prices, quotations should be obtained from several sources before orders are placed, even where subsidiary companies are prospective suppliers. Incidentally, a useful saving in paperwork may be obtained by compiling several order enquiry forms at one typing with each supplier's name in a different address-panel served by a carbon backing, so that the name and address of one supplier only is shown in each underlying form, the original copy only being retained for record purposes. Contractual buying on a competitive basis which provides for continuity of supply and economical cost is usually preferable to short-term buying, provided that orders for essential supplies are placed with more than one supplier as an insurance against production delays arising from late delivery.

The tendency to over-buy should be resisted whether this results from over-anxiety in obtaining supplies or ensuring supplies when delivery promises are broken. However, whilst centralized buying may be profitably adopted to negotiate long-term supplies for general contracts against which branch establishments may place delivery orders, in cases where specialized requirements arise the increased efficiency of decentralized buying more than compensates for extra buying expense, for experience shows that the narrower the range of goods covered by each buyer the more efficiently he functions.

Close regulation of incoming supplies is essential, as these automatically determine the amount of working capital invested in stocks. In addition, the practice of scheduling purchased materials and components provides data for expediting deliveries and also for arranging forward cash requirements. Particular attention is required to ensure that materials in short supply will be available at due date. Excessive stocks easily arise unless incoming supplies are regulated to available production capacities, whilst excessive work-in-progress is caused by "bottlenecks" in assembly shops, which arise from failure to ensure the necessary intake of bought-out components. "Bottlenecks" have a decisive effect on production and are not always easy to locate, still less to eradicate. It is effective speed through the factory which brings economies of cost and working capital—speed in acquiring unbalanced stocks is clearly ineffective, for it impedes the flow of work and impairs working capital. Unsatisfactory work-flow may even lead to the establishment of buffer stores requiring working capital investment which is disproportionate to fixed asset investment. It is also necessary to ensure that inefficiencies do not arise through the inadequacy of receiving room and storage facilities or the slow handling and congestion of incoming supplies, inadequate inspection, damage through mishandling, pilferage or through slowness and faulty timing in the issue of goods into stores or production shops.

Stock control requires the decision to be made whether to regard stocks wholly free for distribution as circumstances require or free only to the extent of quantities unallocated to future production. The free stock system covers only normal requirements and normal delivery periods, whereas the tied stock method ensures that all future requirements are covered by orders. Both methods are dependent on suppliers conforming to delivery periods. Where the tied stock system is adopted, stores control should not be allowed to become academic, so that production is held up because parts already issued are found to be short in quantity when assembly is due to begin. Differences of this kind certainly need investigation, but there is no need to increase costs by holding up production as well.

The intake and use of standard materials for which a constant demand exists may be controlled by operating on the basis of minimum and maximum stocks. In this event, minimum quantities for each stock item are related under normal supply conditions to the weekly consumption rate times the delivery period, whilst maximum quantities are equated to the weekly consumption rates times the sum of the delivery period plus the re-ordering period. A margin of safety is

desirable in fixing minimum stocks and the re-ordering period should be so arranged that stocks are not maintained at excessive levels or buying quantities kept at too low a level to secure an economical price. Arrangements may be advisable for fast-moving items of stock to be made available in the production shops on a self-service basis in order to economize in their precise disbursement.

Where arrangements require that parts are stored with an indication of their allocation to particular jobs, it should be made impossible for progress-chasers to take any of them for use in other jobs on which shortages have arisen unless arrangements are made to ensure their early replacement. In the larger establishments it may be more economical in time and money to have such shortages covered by jobbing methods, rather than to upset production runs or delay assemblies. The constant endeavour should be to detect and eliminate waste before its cost becomes significant. For to have in stock all the components required for a particular assembly, with the exception of a few vital yet inexpensive parts, is an exceedingly costly business as it means the employment of excessive working capital without tangible gain. The cost of replacing missing parts and the cost of rectification of work are not usually such reliable guides in inefficiency as the investment in work-in-progress thereby accumulated.

Even with the best-regulated stock systems, differences between actual and recorded stocks arise due to the incidence of human error, pilferage and deterioration. Stock should, therefore, be checked regularly to ascertain and correct discrepancies. The maintenance of a perpetual stock inventory which spreads the work of verifying the existence of stock items and investigating discrepancies makes unnecessary an annual stocktaking with its resultant stoppage or slowing down of production. The efficiency of storekeeping is improved and the causes of recurrent discrepancies are eliminated by systematic checking which tends also to the maintenance of stocks at economical levels.

Where punched-card machining is used, stock values can be ascertained periodically from perpetual records without the necessity of calculating each item. The global value of each class of stock at each location, or overall, may be ascertained on a standard cost basis by the extremely rapid and accurate process of "digiting", or repeated addition, facilitated by the high-speed operation of punched-card sorting and tabulating machinery, so much so that thousands of stock items, whatever their aggregate value, may be correctly evaluated in a matter of hours rather than of weeks as normally required.

Advantage can be taken to make checks when stocks are low prior to re-ordering. Stock adjustment certificates should be used for recording the incidence and disposal of stock discrepancies and the reasons disclosed, followed up by method study in order to effect procedural improvements. Stores records should also be examined periodically to ensure that slow-moving items are investigated and redundant stocks realized. The segregation of redundant or obsolete stocks from currently useful stocks makes for a more compact and economically operated stores and reveals the existence of items available for disposal or modification. A member of the engineering department

Sectional progress record																	Section	
Operation 1				Operation 2				Operation 3				Operation 4						
Date	Pass'd	Cum:		Date	Pass'd	Cum:		Date	Pass'd	Cum:		Date	Pass'd	Cum:				
insp	insp			insp	insp			insp	insp			insp	insp					

Reverse side of manufacturing order copy

Addenda to manufacturing order

Stores requisition			
Date issued	Quantity	Cumulative	Issued by

Payment ticket					
Date	Section	Op'n No.	Machine group	Machine No.	Check No.

Work label				
Date	Off section No.	On section No.	Date	Off section No.

Rejection work order					Nº	
Date	Manufact'g order Nº	Part Nº	Finish Nº	Section Nº	Check Nº	Machine Nº
Quantity rejected		At operation Nº		Reason for rejection		
Inspector's recommendation to order control						
Date		Viewer				

Fig. 9.—Manufacturing Order Control.

should deal with stores modifications and disposals as a routine duty in co-operation with the purchasing and sales departments.

Manufacturing Order Control.—Except in the simplest cases, action on the shop floor is initiated by the issue of manufacturing orders by the order control section (see Figure 9), for it is usually impracticable to

rely upon the issue of verbal instructions to foremen and operators. The scope, contents and distribution of manufacturing orders are necessarily related to local circumstances, in authorising production to proceed, in directing the flow of work from raw material stores to despatch and in ensuring the return of accurate information regarding performance at each stage of manufacture, as well as of the progress of the job from section to section. Multiple order sets are often used to provide work labels, operation payment tickets, operation progress tickets, and, possibly, stores requisitions and cost control tickets. In batch production, a separate set of tickets is necessary for each batch. Errors are eliminated and clerical work is reduced to a minimum when basic information common to each ticket is pre-printed from embossed metal plates or through the use of hectographic carbon duplicators. Good carbon impressions can nowadays be obtained from the use of duplicators using embossed metallic plates. An instruction card likewise pre-printed may also be issued containing a copy of the relevant operational layout to serve also as a route indicator, whilst a duplicate may be used to provide a comprehensive progress record of each operation as its completion is advised by a progress ticket. Clearly, the promptness with which programme variations are revealed is a critical factor in satisfying scheduled requirements and maintaining a balanced flow of work through the factory.

Method study should ensure that the manufacturing order fulfils its function of ensuring control over the timing and flow of production. Control is facilitated when the standard practice is adopted of checking the availability of supplies and components well in advance of the relevant manufacturing period. Preferably, also, orders should not be issued so far in advance of actual requirements that paperwork routine is disrupted by the need to provide for changing requirements on the part of customers, or to meet design modifications, or revised manufacturing specifications.

Progressing.—The object of progressing is to match performances with programmes within the times specified and to ensure the absence of variations beyond tolerable limits. Effective progressing regulates the flow of work and corrects any variations which arise from day to day in meeting the programme. In order to function effectively, information is required of each operation and the quantity passed for subsequent operation. It is important that progressing, like programming, should be comprehensive in scope and refer back to the engineering stage, for many a programme is upset by arrears caused in the initial stages of engineering and tooling. Obviously, if promised dates for tooling are not kept, manufacturing and assembly are necessarily postponed and usually dislocated.

Progressing solely by departments discourages overall co-ordination, whilst progressing by products through a highly centralized control makes for inflexibility and tends to disturb departmental programmes. A decentralized progress control by departments which serves to relay information on current performances by products to a central progress control, manned by a small but highly efficient staff, secures the advantages of both arrangements and avoids their disadvantages. In

order to ensure that work-chasers in succeeding sections may maintain close co-operation and so facilitate inter-sectional work-flow, it is desirable to issue complete schedules to all progress-chasers concerned with each product group. There is, however, no need for decentralized departmental controls to report each movement of material through the production cycle to the centralized control so long as progress is in accordance with plan. The application of the principle of exceptions in this respect not only saves clerical labour and paperwork, but also avoids confusing the central control with unnecessary data. The provision of shortage lists as to items which are holding up production and the routine provision of lists of items which are likely to appear on future shortage lists unless remedial action is taken should suffice. These lists should be used as the basis for authorizing any necessary rearrangements of production in agreement with the scheduling section and the shop foremen.

In theory, with an efficient system of production control, no questions should arise as to the location of any job and the reason for any delay ; but, in practice, jobs do occasionally go astray, even in the best regulated factories. In these cases, work-chasers act as job-finders rather than as job-pushers. Their duties relate to incoming supplies as well as to manufacturing programmes. In the absence of efficient production control, the need inevitably arises for the employment of work-chasers who act as job-pushers as well as job-finders in order to maintain merely a moderate level of output. Their function is to find the order, transport it to the next operation, have it scheduled on a specific machine for early action, make a check back to ensure the absence of additional delay and arrange ahead on subsequent sections for further progress in order to meet the output schedule. In such circumstances, it is difficult to guard against unauthorized "order-robbing" on the part of chasers in their efforts to keep particular jobs going, for example, in order to cover work spoiled or misplaced, as a result of which other orders fall imperceptibly into arrear. Chaos can easily be created, and manufacturing schedules disrupted, by chasers pushing particular jobs too hard or exercising pressure against too many jobs at the same time, so that rush jobs tend to pyramid and dislocate the orderly flow of production. Method study should be applied to the operational activities of chasers in order to ensure that such conditions do not arise. The fact that chasing exists at all is, of course, symptomatic of disorder, so that close study of the activities of chasers provides realistic evidence which can be classified and evaluated as the basis of effective remedial action.

CHAPTER 5

WORK MEASUREMENT AND INCENTIVES

WORK measurement facilitates programming, manning, productivity measurement and cost control. It serves also as the basis of incentive schemes which ensure equality of reward for equivalent skill and effort under satisfactory working conditions.

The fact that directly productive work, such as machining or assembly work, is usually amenable to time-study and the application of incentives has resulted in special emphasis on this class of work. Accordingly, inadequate consideration has been directed to the economic utilization of indirect labour employed in many other industrial activities. The accounting distinction between these two classes of labour tends to obscure the fact that both are equally essential in securing effective output through their specialized and concerted effort. Indeed, the expression of overhead expenses as a percentage of direct labour is virtually meaningless by itself, for their intrinsic relationship can be correctly ascertained only as the result of method study and work measurement.

Normal Probability Curve

If measurement is made of an individual characteristic, say stature, of a large number of men selected at random, and the variate measure-

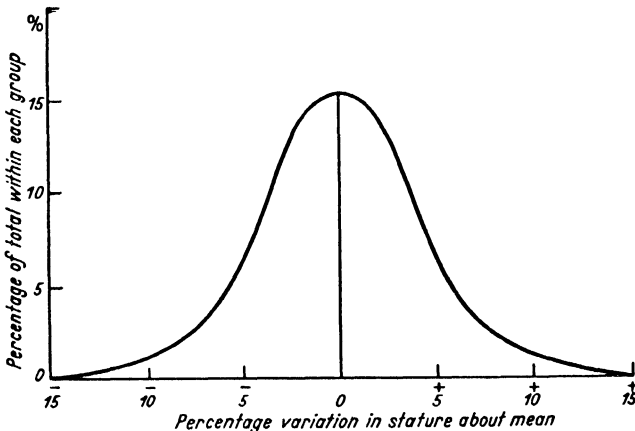


Fig. 10.—Percentage Variation in Stature of 8,500 Males about their Mean.

ments of all are grouped according to their magnitude, the resulting frequency distribution, when plotted on graph paper, forms a curve of bell-shaped profile, as illustrated in Figure 10. For just as there are relatively few people who display exceptional characteristics on the

high or low side, increasing numbers exhibit a central tendency towards the arithmetic mean, although only a fraction of the whole coincides with it.

Other typical measurements may be used instead of the arithmetic mean as being representative of the whole. The mode expresses the most frequent variate and the median is the middle term of all the variates when these are arranged in order of their magnitude. Any of these typical statistics may be used in determining characteristic trends, or in comparing similar characteristics exhibited by different populations. However, none of these typical statistics tells anything about the range curved by the general statistics, or about the way in

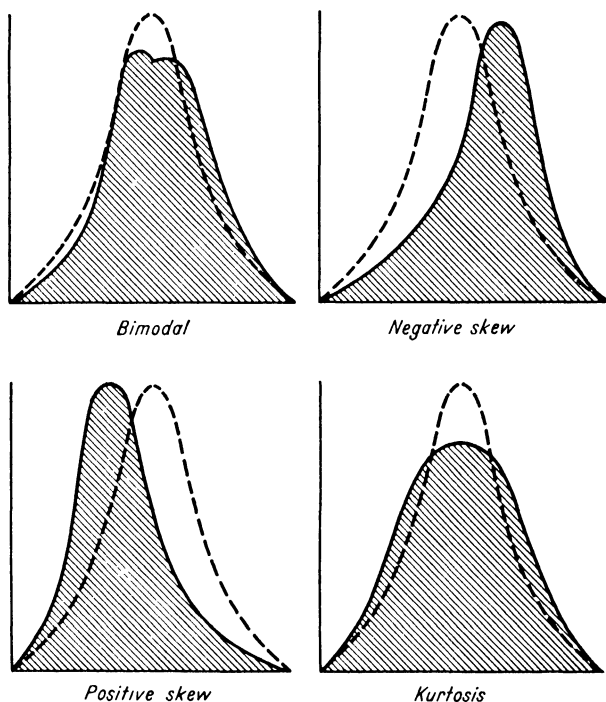


Fig. 11.—Curve Types.

which the variates are distributed. Whilst a similar type of distribution curve may be expected for each characteristic measured, provided the population concerned is random and sufficiently numerous, an identical distribution is not to be expected in each case, because there is no natural law relating individual characteristics in general. For example, if comparison is made of the walking and running speeds of the same people, a different spread is probable about the arithmetic mean of the respective speeds attained, because the action of running is not that of walking quickly, and it is more difficult to run than to walk. The dispersion of the variates about the arithmetic mean, or the spread of the individual statistics about their overall average, will vary according to the nature of the population concerned ; for example,

less variation may be expected about the mean speed of trained athletes than about the lower average speed of the same number of untrained people. Accordingly, in a mixed population of distinct types, say males and females, the distribution curve of the characteristic measured may be expected to take a bimodal form, having a dip in its profile, indicating that two classes of population are concerned. Trimodal and multimodal curves may also arise under appropriate conditions. Moreover, the shape of a distribution curve may vary in asymmetry (skewness), or in flatness at the mode (kurtosis). Skewness indicates bias and is apparent when the arithmetic mean and the mode do not coincide, being conventionally regarded as positive when the arithmetic mean is greater than the mode and negative when it is less. When a distribution is skewed, the arithmetic mean is less representative than the mode or the median, because it is greatly affected by extreme values. Kurtosis indicates the spread or dispersion of the variates pictured by the curve (see Figure 11). The standard deviation provides a most useful statistical measure of dispersion, and is calculated as the square root of the arithmetic mean of the squares of all the variates from their arithmetic mean, the squaring process eliminating negative signs. A simpler measure of dispersion is provided by the range of the variates ; but the range, unlike the standard deviation, does not indicate the way the variates are clustered around the arithmetic mean and its value is seriously affected by exceptionally large or small items. The significance of the curve types shown in Figure 11 is mentioned on pages 88 and 141.

If a speed range is accepted of 1 : 2 between leisurely working and very fast working for industrial work, a performance chart may be constructed accordingly in which increments between stages reduce as working speed increases (see Table 2). This range of 1 : 2 compares reasonably with activities like walking and cycling, *e.g.*, a normal walking speed of 3 m.p.h. with an athletic speed of $6\frac{1}{2}$ m.p.h., and a normal cycling speed of 12 m.p.h. with an athletic speed of 25 m.p.h.

TABLE 2
PERFORMANCE CHART

<i>Speed</i>	<i>Relative Output Rate</i>	<i>Percentage Output Scale</i>	<i>Increments per cent</i>	<i>Representing</i>
Very fast . . .	3	100	20	Double time.
Fast	$2\frac{1}{2}$	$83\frac{1}{3}$	25	Time and two-thirds.
Moderate . . .	2	$66\frac{2}{3}$	$33\frac{1}{3}$	Time and one-third.
Leisurely . . .	$1\frac{1}{2}$	50	50	Dayrate.
Slow	1	$33\frac{1}{3}$	—	—

The limitation of the simple range as a measure of dispersion is illustrated by Figure 12, which shows two curves *x* and *y* having the same range, but different standard deviations. In both curves the arithmetic mean, mode and median coincide, but the variates in curve *x* are more closely clustered around these typical values.

This coincidence of typical values is a feature of the normal probability curve. The higher the curve the narrower it appears in its

central part and the more quickly it falls towards extreme values. The normal probability curve provides a useful comparative device because it has definite mathematical characteristics. All curves of this type, whether or not different in height, share the important property that fixed percentages of the variates on which the curve is based fall within specified distances from the typical value given by

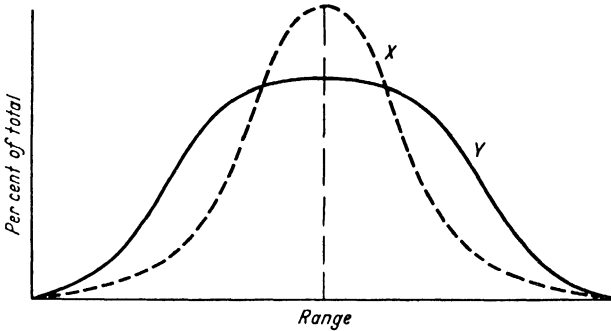


Fig. 12.—Comparative Distribution.

the coincident arithmetic mean, mode and median. These specified distances are measured either in terms of the standard deviation or what is misleadingly termed the probable error. The probable error is so called because, in a normal distribution, half the variates fall within the range ($\text{Mean} + PE$) and ($\text{Mean} - PE$), so that, if any variate is

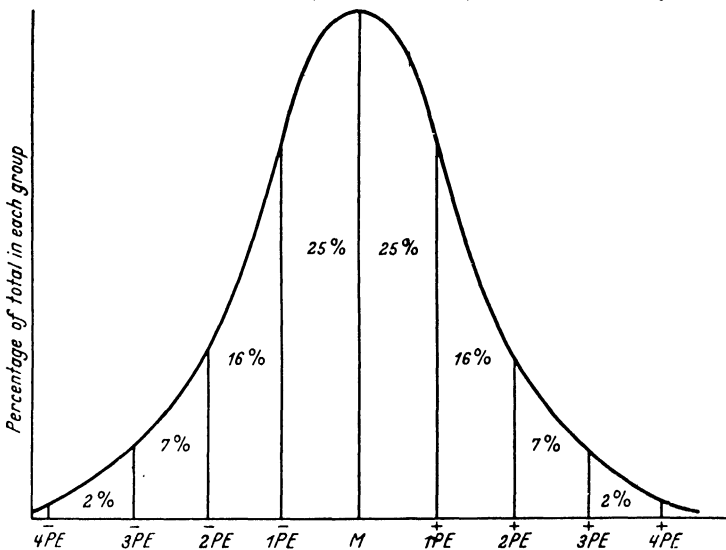


Fig. 13.—Normal Distribution Curve.

chosen at random, it has an equal chance of falling within or without these limits. Tables have been compiled from the equation to the normal probability curve, considered as unity or 100 per cent, showing the proportion or percentage of the total variates which fall within specified sections of the curve bounded by fractions or multiples of the

standard deviation or of the probable error. The probable error and the standard deviation are related by the formula $PE = 0.6745 SD$. The approximate dispersion of the variates in any normal distribution curve is illustrated in Figure 13. Thus, if $1PE$ is set off on each side of the arithmetic mean, approximately half of all the variates fall within this range and nearly all within the range $4PE$. Likewise, if $1SD$ is marked off on each side of the arithmetic mean, 68 per cent of all variates fall within this range, whereas if $2SD$ is set off on each side of it, approximately 95 per cent of all variates fall within these limits and nearly all the variates come within the limits $\pm 3SD$. Thus, if PE or SD is relatively large in value, the variates are widely scattered about the arithmetic mean, whereas if these are relatively small in value, the variates are concentrated.

Unlike individual stature, working speed is a variable affected by external conditions and personal circumstances and is not so readily measured in comparative terms. Nevertheless, as natural abilities, training, skill, experience and other qualities vary over a fairly wide scale, with corresponding variations of output, it is a reasonable expectation that the working speeds of a sufficiently large and unbiased group chosen at random will exhibit the characteristic form approximating to a normal probability curve.

Time-Study Procedure

Considering the wide variety of jobs in a large factory, where a number of complex products are made requiring a variety of processes, skills and methods, it is obvious that the measurement of individual working speeds and standards of output attainment requires specialized knowledge and experience.

When the method of manufacture has been decided in each case, the time-study engineer standardizes the work-cycle and determines each sub-operation or elemental task to be time-studied, taking care not to break down jobs into elements of too small duration for accurate results to be secured. At the same time, the grade of labour, skilled, semi-skilled or unskilled, is specified for each elemental task. Then time-studies are made of each work-cycle, element, or sub-operation, over a minimum period of, say, half an hour, or by securing a series of, say, at least twenty readings from, if possible, more than one operator. The worker is rated and the observed times are then normalized.

Rating the worker is a necessary process in the evaluation of standard daywork and incentive times, for not only are there large differences in performance among workers as a whole, but also by the same worker over different periods or under varying conditions. Time-study is not concerned merely with time measurement without regard to associated effort. It is concerned with measuring man-power, which relates to $\frac{\text{work done}}{\text{time}}$; i.e., $\text{effort} \times \frac{\text{movement}}{\text{time}}$, or $\text{effort} \times \text{speed}$. Thus, equivalent man-power may be used in doing heavy work at a slow pace, or light work at a rapid pace. The time-study engineer assesses man-power according to the speed and effort which might reasonably

be expected from workers of average ability and so establishes standards of man-power. Standard daywork performance has been defined as covering hand motion as involved in dealing fifty-two standard size playing cards into four separate piles in 0.150 minutes ; finger movements as involved in the process of typing at the rate of forty words per minute and body movements as involved in the action of unrestricted walking at the rate of three miles per hour. Standard daywork performance should enable a worker of average ability in the particular task concerned to maintain, without undue fatigue, a speed in excess of the standard set of, say, one-third over the whole of the working day.

The day-rate standard is often given a value of 60 units of work an hour. In other cases, values of 80 or 100 units are used as arbitrarily measuring an hour's work. When piecework rates are fixed at such a level that a worker of average ability can earn a bonus of 25 per cent, an " 80 " scale gives an incentive standard of 100 units an hour, so that a worker who earns 50 units in an hour is regarded as being 50 per cent efficient, and so on. A scale of " 100 " in which day-rate standard is fixed at 100 units an hour gives a percentage scale for measuring efficiency in terms of day-rate standard. It is claimed, however, that a " 60 " scale is more easily understood, because 60 units of work an hour require an average of 1 unit of work a minute ; therefore, he who works faster than the clock earns bonus.

The performance chart shown as Table 2 may be usefully extended on the basis of a standard daywork performance of 60 units an hour and an incentive performance of 80 units an hour to give a bonus of one-third in this case, as shown in Table 3. For example, if a worker

TABLE 3
PERFORMANCE CHART

<i>Speed</i>	<i>Relative Output Rate</i>	<i>Representing</i>	<i>Performance on "60" Scale</i>	<i>Normalizing or Leveling Factor</i>
Very fast . .	3	Double time.	120	2.000
	$2\frac{3}{4}$		110	1.833
Fast. . .	$2\frac{1}{2}$	Time and two-thirds.	100	1.667
	$2\frac{1}{4}$		90	1.500
Moderate . .	2	Incentive standard.	80	1.333
	$1\frac{3}{4}$		70	1.167
Leisurely . .	$1\frac{1}{2}$	Dayrate standard.	60	1.000
	$1\frac{1}{4}$		50	0.833
Slow . . .	1	} Learning period.	40	0.667
	$\frac{3}{4}$		30	0.500
Very slow . .	$\frac{1}{2}$		20	0.333
	$\frac{1}{4}$		10	0.167
None . . .	—		0	0.000

under time-study is regarded as operating at a performance of 40 in producing 120 pieces of work an hour, or half a minute per piece, the standard day-rate times will be found by multiplying the observed time by the normalizing factor ; *i.e.*, $0.5 \times 0.667 = 0.333$ minutes

per piece ; or, normal time per piece = elapsed time per piece $\times \frac{\text{rating}}{60}$
 $= \frac{60}{120} \times \frac{40}{60} = 0.333$ minutes per piece. Each operator engaged on

manual work is rated on his general performance during the whole duration of the study according to the length of the work-cycle. Employees should not be expected to give a performance that is not within the reasonable limits of their abilities and physical capacities. Performance over the incentive standard usually produces fatigue that sets the maximum capacity for the average worker, whilst performances beyond 100 units per hour are excessive for normal incentive workers but within the capacity of those who are highly skilled or endowed with unusual physical capacity.

Observed times, when normalized in accordance with ratings, are rearranged in series for each work-cycle, operation, or element, so that differences in readings are readily apparent. Basic normalized times are next determined from these readings by adopting the arithmetic mean, modal or median values of each series, or their mean value after excluding extreme values, or their minima, or some other appropriate method. Allowances for relaxation (personal delays and fatigue) and for normal contingencies are finally added to the normalized observed times to determine standard times. Agreement should be reached with the workers' representatives regarding the basis to be adopted for fixing basic times and relative allowances. At the same time, it is desirable to have an assurance that workers under time-study will conform with the methods of working specified and will co-operate to give a representative performance of the actual conditions of the job. Practice varies in making allowances for relaxation and contingencies. These should be made on normalized times rather than observed times. Allowances should be made not only for the excessive fatigue of heavy work but also for normal speed and effort. Indeed, light work at high speed can be more fatiguing than heavy work at slow speeds. Realistic time-study engineers appreciate that some relaxation is required even in sedentary jobs. Normal movement is naturally slower in doing heavy work than in light work, so that special adjustment is not necessarily required for heavy work unless the worker has to operate at an excessive speed. However, the application of relaxation allowances in all cases minimizes the adoption of "tight rates" which cause dissatisfaction to workers by their unreasonableness.

The allowances should take into account not only the work itself, but also the conditions under which it is done. Consideration should be given to the physical effort exerted, whether the worker is standing or sitting, the degree of attention or concentration required, the incidence of monotony, the frequency of the operation cycle, physical conditions, such as excessive heat or cold, fumes or wetness, and such considerations as the need to wear protective clothing. Company policy regarding working hours, rest-pauses and tea-breaks are all relevant factors in making relaxation and personal allowances.

Frequently, a minimum allowance of 10 per cent is made to cover fatigue, with an additional 5 per cent for personal needs and a further

3 per cent to cover contingencies, such as tool-grinding and gauging ; that is, 18 per cent altogether on normalized times. Even with such a continual operation as walking, ten minutes rest per hour is normally required if a speed of three miles an hour is to be maintained without undue fatigue. This rest period is about 17 per cent ; but, in the case of sedentary workers, an allowance less than this should normally suffice. Clearly, where jobs require high fatigue allowances, mechanization is apparently indicated in order to reduce the fatigue factor. Delay time-studies should preferably be made over a period of at least a working day when interruptions to normal working are significant. Delay time may be claimed separately or covered by a blanket allowance spread over all time standards or by a sliding scale allowance which assumes that the lower the performance below standard the greater has been the delays encountered, although precise justification for this last procedure could hardly be proved in practice. Where close and exact tolerances apply, the provision of an incentive quality allowance of at least another 5 per cent may be desirable according to circumstances. It is important to realize in the interests of economy that the application of increasing refinements to time-study practices is generally subject to the law of diminishing returns.

Various conditions as to the relative importance of manual to mechanized work occur in practice. For example, the condition may occur where a machine is being operated at such a slow pace that the operator is, in effect, working at only half the speed obtainable if the machine could be speeded up. In this case, he is operating as fast as is required, for an operator of average ability could not work any faster under the conditions given, so that the output, as far as machine time is concerned, is regarded as the normal incentive standard. If time has to be spent external to the machine, say, in work preparation, and a low machine speed requires an operating effectiveness during machining of only 50 per cent, then if an operator under time-study is rated at 75 per cent of day rate whilst doing external work, and if he produces an output of 100 pieces an hour with a ratio of machine time/external time of 1 : 2, the normalized output is :

	<i>Time Ratio</i>	<i>Actual Times</i> <i>hours</i>	<i>Effective Times</i> <i>hours</i>
Machine time	1	0.333	0.333
External time	2	0.667	0.500
	3	1.000	0.833

$$\text{Normalized output} = \frac{100}{0.833} = 120 \text{ pieces an hour.}$$

External time may be more important than actual machining time in high-speed repetition work, yet machining time is often studied and outputs fixed with little or no regard to setting time. The manufacturing speed of automatic plant is fixed by the machine and not by the operator, whilst total output in a given time and output quality is

determined largely by the machine setter. In highly mechanized industry, high production per operative is not generally desirable at the expense of low percentage machine efficiency, deterioration in quality or increased cost per unit of output. There is clearly need to minimize handling time with grouped machine layouts. Great care is often taken in rating output speeds which may automatically be high, whilst relatively little regard may be given to work-flow and reduction in handling time, with the result that stock investment is higher than necessary. This disadvantage may be largely eliminated with flow-production ; but the penalty for inadequate planning and control of flow-production is greater than in other types of production, particularly when a complete stoppage occurs.

Rating Reliability

The object of normalizing or levelling observed time-studies is to determine the standard day-rate performance for a worker of average ability who is reasonably familiar with the operation studied. Superior workers combine and overlap motions in a way which is outside the capacity of normal workers, whilst, on the other hand, inferior workers perform each motion separately without even normal overlap. If an operator who is below average is studied by an inexperienced time-study engineer, there is a tendency to over-state the levelled performance, whereas, if a worker is studied who is above average, there is an opposite tendency to understate the levelled performance. Therefore, more reliability is obtained by studying average or near-average workers in determining standard times. Accurate rating results from a critical analysis of each elemental operation in relation to conditions of working.

If the mean performances of workers in different sections of a factory are compared, the true position may be either that the average performances of the sections are actually different from one another, or that the " standard " man-hour is not the same in each section and therefore not strictly comparable. For example, some sections may be " over-rated " and actually working slower than other sections which may be " under-rated ". Correct assessment of the real position is important, for a standard which is properly applicable to a particular section may be of restricted use only as a general measure of factory efficiency, dissatisfaction may arise with earnings owing to the prevalence of " tight " rates and anomalies and wastage may occur owing to the prevalence of " loose " rates. The question therefore arises as to the reliability of performance time rating, requiring as it does judgment by the time-study observer, for clearly the performances of time-study personnel are also variable. However, less variation in quality arises as skill increases, so that relatively slight variation, say ± 5 per cent in any particular case, may be expected in the performance of thoroughly trained time-study engineers. In order to avoid bias in rate-fixing, it is clearly important that regular means should be adopted whereby time-study observers are demonstrated to be within narrow limits consistent, not only in their own rating assessments, but also

in relation to one another. In order to avoid loose rate-fixing, they must be skilled not only in ensuring that basic elemental operations established are efficient, but they must possess a proper concept of normal performance, have the ability to rate consistently the same work performance at different occasions and by various operators and to consistently detect and rate proportionate changes in performance, as well as to exercise a proper sense of discrimination in assessing the normal time from the various observed times. As the time-study engineer is really there to help workers to achieve greater productivity, his function should not be confused by extending his duties to devising or administering bonus incentive schemes.

The apparent performance of a group of workers may be regarded as a reflection of their actual performance under normal conditions, of rating efficiency and of variations in working conditions. Provided actual performances, rating efficiency and variation in working conditions all follow the normal law, that is to say, they would, if it were practical to express them numerically, closely conform to a normal distribution curve, the apparent performance would on the average equal the actual performance ; but the number of performances which coincide with the average would be reduced, so the central tendency would be less. Of course, if bias exists, the distribution of apparent performances would display skewness or kurtosis. Usually bias will exist in statistics of individual performances, for learners normally operate below day-rate speeds, whilst established workers operate at outputs in excess of day-rate standard with a greater tendency towards the incentive standard than towards double-time working. Moreover, the performances of skilled workers may be expected to be less variable and to show a higher average than in the case of unskilled workers. Also performances may be expected to show less variation to the degree that output is conditioned by mechanized activities.

In order to ensure as far as practicable the general accuracy of performance statistics, average performances should be justified by common-sense comparisons ; the causes of any distortion in their distribution curve and the effective extent of their range should be justified. Cross-sectional comparisons should be made of performances according to working section, product-group and labour grade where the distribution curve is multimodal or displays kurtosis. Where the number of performances is insufficient to approximate to a bell-shaped distribution curve, resort to statistical sampling techniques is indicated. Alternatively, statistics may be accumulated where relatively few performances are involved, so that a bell-shaped distribution is gradually obtained to indicate the range and dispersion of performances over a period. Apart from the general accuracy of performance statistics, some check is desirable of individual performances, and to this end records should be maintained for each worker in order that any exceptional variations may be investigated and corrected, for the performances of an individual worker should tend towards a normal probability curve over an extended period.

Synthetic Standards and M.T.M.

Where various elemental times are used in different combinations in manufacturing a variety of similar products, substantial administrative savings may be obtained by using overall times, known as synthetic times, built up from time-studies of relevant elemental times. For example, in the case of machine operations, machine times may be calculated from machine speeds and feeds and for associated manual operations, standard constants may be used derived from time-studies. In other cases, standard times may be established for various product sizes and intermediate values may be interpolated from charts. The smooth application of synthetic standards requires consistency in the operational activities concerned—in working conditions, material flow, and so on. So long as any inconsistencies balance themselves out over the working period to which the synthetic standards are applied, the results are likely to be acceptable to those concerned ; but care is necessary that the obtrusion of any marked degree of instability does not undermine confidence in their application.

Methods Time Measurement (M.T.M.) is a development which is proceeding in the United States regarding time-study practice, whereby synthetic data is provided based on a few positive elemental motions, such as reach, grasp, position, turn, move and release, all of which have been carefully defined. It is a procedure which analyses any manual operation or method into the basic motions required in its performance and assigns to each motion a pre-determined time-standard which is related to the nature of the movement and the conditions of its use. Method and time are thus treated together instead of separately, so that the time-standard and method are introduced into the shop simultaneously. Although errors in time-standards are eliminated, prospective sources of error remain in estimating the production method to be adopted.

Analytical Estimating

In certain cases, as with maintenance work, although standard data may be available for setting labour standards in certain operations, it is unlikely that complete information will exist in respect of all jobs. The remainder will have to be estimated.

The problem of setting time-standards overall may be approached analytically by breaking the job down into component elements, usually of longer duration than those taken for time-studies. Practical work elements in respect of maintenance activities may need to be measured in minutes, whereas time-study elements are usually expressed in seconds' duration. The assumption is that a person who is fully conversant with the practical details of the work and has been trained in work-study techniques can make a reliable estimate of the time required to perform those elemental tasks which come within his province and for which synthetic times are not available. Reference to records of previous estimated and actual times should enable progressively reliable estimates to be established. Checks with actual performances not only extend the range of standard times available, but enable the estimator to improve his expertness. Thus analytical

estimating may be used to determine the work-content of non-repetitive jobs which economically do not permit or justify calculations by more refined methods of time-study. On the other hand, the application of analytical estimating is limited by the fact that the conditions under which many jobs, such as maintenance work, are done are such that precision in the specification of method is impracticable and the nature of the work itself limits its economical application.

Direct Incentives

Straight-time wages do not provide a positive incentive for increased production, nor do they recognize exceptionally industrious workers, except those who are graded according to their skill and ability. Straight-time wages do, however, provide an incentive to good quality production, especially where the manufacturing operations required are, of necessity, relatively slow. With faster operations, the general opinion is that workers employed on straight-time rates operate only at half or two-thirds of their capacity, and even then at a relatively high supervisory cost.

The best incentive scheme in the world will obviously fail to produce work from people who have no work to do, whereas, with a constant flow of work before them, a fair standard of output may be achieved in the absence of any special incentive ; but direct incentives are usually required to stimulate and sustain a really satisfactory output at an economical unit cost. Labour troubles are not caused by the institution of agreed incentive schemes ; but they can easily emerge where organizational failings are disclosed which cause delays, impede production, and so frustrate people who want to get on with their work and earn bonus. Dissatisfaction on the part of employees encourages absenteeism and causes excessive labour turnover, which increases training costs and overhead expenses.

Reasonably stabilized production conditions are essential to the satisfactory functioning of incentive schemes and there is also need to ensure that resources are effectively deployed to sustain work-flow in the future, particularly where composite end-products are concerned. Even though normal bonus payments may be made to compensate for loss of earnings through the incidence of waiting time, results are certain to prove unsatisfactory if payments of this kind become habitual, by reason of their expense to the employer and the underlying frustration caused to workers.

Provided an incentive scheme promotes confidence by its practicability and the realization by those who are entitled to benefit that additional effort will be adequately rewarded, it is only a matter of time and organization before active co-operation is fully secured and substantial benefits accrue. Nevertheless, it is a mistake to assume, even when workers regard the amount of money in their pay packets as highly satisfactory, that they do not need or are unlikely to respond to the personal commendation of their supervisors. It is vital to remember that production is basically a human process. The successful incentive plan is tailored to appeal to each class of employee concerned and is sufficiently flexible to cater for all conditions which may arise

beyond the control of the particular group of people affected. It is also easily understood and simple in application. Although administrative costs tend to rise with the introduction of incentive schemes, owing to the need for rate-fixing, counting, inspecting work and payment routines, the application of time-study invariably brings savings through improved methods and increased output.

The attainment of maximum continuous performance in a given task usually requires certain physical adjustments on the part of the worker to permit the subconscious operation of movements necessary for speedy working. A successful incentive scheme encourages the worker to adjust himself accordingly, so that he is able, without strain or fatigue, to augment appreciably his basic earnings, by applying himself consistently and conscientiously to his job. Special arrangements are required to assess the earnings of learners, as skill has to be developed before satisfactory quality and speed of production are attainable. They need an incentive to persevere until the necessary degree of skill is acquired.

Sound time-study and rating is the essential basis of any permanent incentive plan applied to factory operatives, because, if rewards are inconsistent and workers become uncertain of their earnings, confidence is destroyed, without which co-operation becomes impossible. Adequate preparations are required before a scheme can be successfully instituted, for production studies which are made hurriedly are generally unreliable and organizational deficiencies are equally disturbing. Poor rate-fixing, whether resulting in tight or loose rates, encourages subnormal productivity ; because with tight rates the worker may feel the incentive offered is not worth the effort required, and with loose rates the worker who earns more than the recognized maximum becomes unpopular with his fellows. The analysis of a job into its elements for the purpose of time-study should not carry the assumption that a job is simply the sum of its component parts, for often the time taken to perform a work element depends upon previous and subsequent elements. The benefits of specialization must be realized in order to maximize results. Accordingly, specialized workers need to be relieved of all those extraneous duties which distract their attention from the task in hand, so that assistance is rendered as required and specialized skills are effectively and continuously employed. Administrative arrangements must be sufficiently flexible to cover the contingency of operatives being transferred to work of greater or less skill, in order to cater for production demands and must, also, be sufficiently stringent to guard against any side-stepping of the scheme by rate-fixers assessing performances and so authorizing bonus payments equated to an assumed performance which cannot be verified, as no time-study has been made.

Adequate arrangements are necessary to ensure that quality is maintained. Quality maintenance depends on design efficiency, the proper maintenance of machines, tools and equipment, satisfactory working conditions, correct training of employees, consistency in the quality of raw material supplies, correct allocation of work in accordance with the degree of skill required, proper supervision, efficient

workmanship, and adequate, but not unnecessarily strict, inspection standards. Where operational carelessness is proved, the penalty should follow of rejected work to be redone without bonus payments.

Joint agreement is necessary to ensure that no time-study prices, bonus or basic times may be altered except where employer and employees mutually agree to adopt a new price, or a mistake has been made in the calculation, or a significant change has occurred, either in manufacturing methods or in the normal run of quantities produced. It is desirable that temporary standards are valid only for job lots or strictly limited periods and are used without prejudice to the assessment of permanent standards. Unless time rates are adjusted to accord with changed methods of production introduced from time to time, gradual manufacturing improvements are likely to result in loose rates, which, when finally corrected, may cause unrest. Whenever time-standards are changed on continuously running jobs, a temporary compensatory payment is indicated if earnings are reduced as a result of the production rhythm being disturbed. In order to induce workers to suggest improvements in time-standards, awards may be made to those who suggest worthwhile improvements which will benefit the company. The award could equal the estimated reduction in bonus earnings over a specified period, less the amount of any special costs incurred by the company through adopting the suggestion. In any case, it is desirable to arrange for workers to share in gains resulting from improvements of time-standards, for example, by part of the assessed annual savings from this source being used for their direct benefit.

When incentives are assessed on job performance, a system of checking on and off each job is required. In other cases, the assessment of performance may be made on a daily or weekly basis. As this often requires an assessment of the value of jobs uncompleted at the close of each period, the method is not readily applicable to long-run jobs, although when applied has the advantage of minimizing calculations.

Incentive rewards may be either on a flat rate basis or on a differential basis, which may be progressive or regressive. The progressive basis gives a relatively higher reward as hourly output increases and indicates that the employer does not intend to limit piecework earnings or to cut piecework prices. A progressive incentive rate increases direct labour costs, but the greater spread which increased output allows for overhead expenses usually results in this extra cost being two or three times covered. Workers tend to consider their net earnings rather than their gross earnings when rates of taxation are high ; but a progressive rate of incentive payment helps to remove any disinclination to greater effort, especially where a progressive rate of P.A.Y.E. applies. On the other hand, flat rates have the advantage of simplicity, although where a unit system of work measurement is used, progressive rewards can easily be applied. Although an improvement of output generally results when day rates give way to an incentive method of payment, the position sometimes arises when extra reward seems to be rejected in favour of leisure. On the other hand, the incentive scheme may be so planned that upper and lower

limits apply to possible hourly earnings. If work-studies are provisional only and there is a real danger of piecework rates becoming "loose", it may be expedient to adopt a regressive basis of incentive payment as a temporary measure, so that bonus earnings will be restricted until basic time-studies are established. There is no need to restrict incentive earnings based on efficient time-studies, because, even if bonus earnings are theoretically unlimited, relatively few workers will make exceptional earnings owing to the incidence of the normal probability law.

Individual and Group Incentives.—The claim is often made that group incentives are preferable to individual incentives, on the thesis that teamwork provides a natural basis of interest and satisfaction. There can be no doubt that teamwork can give rise to interest and satisfaction, particularly when individual achievement receives the spontaneous acknowledgment of team members. Nevertheless, just as there are sports which primarily require individual achievement, so are there others, which, whilst benefiting from individual achievement, necessarily demand co-operative effort.

Likewise in industry. At one end of the scale, there exists a high degree of mechanization with large units of plant, high capital expenditure per man-year because of relatively few workpeople, and continuous operation with all its associated problems of maintaining work-flow, so that the final output is remote from the activities of any particular person. At the other extreme, there exist light engineering factories with relatively numerous employees whose activities are capable of individual measurement and control. Even if individual effort is readily discernible and capable of precise measurement, an individual incentive scheme may be upset if short production runs, special jobs, fluctuating output schedules and other practical considerations affect the smooth flow of work. Too fine a division of functions in relation to the number employed and the nature of the product tends towards production becoming unbalanced, and this position may be emphasized where individual incentives apply. Where fast-moving machinery is used, setting time may be more significant than operating time. Where output is mainly a function of machine speed, the scope for individual effort is also less pronounced. The emphasis given by individual incentive plans to personal financial reward, whilst important to those who can benefit, tends to impair the creation and maintenance of a corporate team spirit, because one does not get as much money in his pay packet as another engaged on similar work.

Clearly, in cases where individual effort cannot be readily segregated, or where manufacturing conditions cannot be reasonably stabilized, or where operators are clearly dependent upon one another for maximum output to be obtained, a group system is the only practical solution. A group plan is particularly advantageous when the reward is based on the end-product, for a balanced output is more likely to be obtained. An overall bonus based on end-product output permits the flexible deployment of labour, for in the event of absenteeism, machine breakdown, or other difficulties arising, workers can be transferred to other jobs within their general labour grade without any associated

payment problem arising. Labour mobility is encouraged by the maintenance of the minimum number of basic rates of pay.

Numerous advantages are usually claimed for group incentive schemes ; with the realization that group harmony is essential to successful attainment. For this reason, particular care is needed in choosing group leaders and in allocating people to groups. Groups should neither be uneconomically small nor unwieldy in size ; but the technical requirements of the job are a determining factor in this respect. The large group is easier to control for work allocation than the small group, as average output is usually more stable and predictable. The group system promotes individual discipline in requiring good timekeeping and minimum absenteeism, and the encouragement given to co-operation is itself highly productive. Quality production is sustained, particularly when rewards are based on the visible output of end-products approved by final inspection. The penalty for defective work should be its return to the group for correction, without bonus, as the first job for the day. Appreciable administrative economies also accrue when group incentives are applied as relatively few time rates are needed in comparison with individual incentive schemes, so that the volume of paperwork involved is reasonable, whilst checking and viewing operations are minimized. The introduction of miscellaneous duties which influence overall productivity is also practicable where group incentives apply if these ancillary duties vary in their time content and do not justify attendant service workers. The group system extends the community spirit to new employees. Disputes as to the allocation of work are also less likely to arise because the group system tends towards an individual allocation of duties in which each person's latent abilities find expression. Variety of routine is also claimed as another advantage of the group system, on the basis that a change is as good as a rest ; but against this is the fact that intensive specialization and work-volume are essential for the achievement of high rates of productivity.

Group earnings may be distributed in various ways. Where the distribution is by rate, the total earnings of the group are calculated and divided amongst the members of the group in proportion to individual base-rate earnings, thus taking into consideration time worked in the group and relative skills as indicated by base rates. In the equal bonus distribution method, base-rate earnings of the group are extracted from total earnings and paid to each individual according to his basic rate, whilst the balance of group earnings is distributed *pro rata* to time worked, thus discounting skill and individual contribution. In other cases, the distribution of group earnings is made on an agreed predetermined basis as between one class of worker and another according to time worked. The practice is falling into disuse whereby unskilled members of a group are paid at time rate only out of aggregate group earnings. An alternative method of group incentive is provided of rewarding group effort by paying a special bonus after a target output has been achieved, or by increasing basic timework earnings by the same percentage as relates output to an agreed datum figure. It is true that in grouping people for bonus payment, the

superior operator profits the inferior one ; but the objection can be met by grading workers according to their skill and ability, so adopting a system of merit rating to determine individual basic rates of pay. Indeed, the graded group would appear to possess most of the advantages of individual incentive schemes and few of their disadvantages.

There are many types of incentive schemes capable of adoption either to individuals or groups.

Straight Piecework.—The operator is offered a fixed price per item or operation, based upon an estimated output sufficient to cover his basic rate of pay, plus, say, one-third bonus. Thus, with a base rate of 3s. per hour and a bonus of one-third to produce an estimated hourly output of twenty-four items, the fixed piecework price is 2d. If twelve articles are produced in an hour the operator earns 2s., whereas if forty-eight articles are made he gets 8s. As minimum piecework earnings are generally established in accordance with base rates, he receives 3s. in the former case, although he really earns 2s., thus involving the employer in an excess wage cost of 50 per cent in his case. Straight piecework, whilst simple in operation, is expensive for low outputs and shows no differential saving against normal costs when high output rates are achieved, whereas the worker enjoys a guaranteed minimum wage and a theoretically unlimited maximum hourly rate of pay.

When piecework earnings are calculated on money prices, the method of payment is known as money piecework ; whereas when wages are based on time allowances, the method is known as a piece bonus or time allowance method. If the time taken under a piece bonus system is less than the time allowed, the worker gains the advantage of the time saved, as he is still paid for the time originally fixed, whilst the employer saves, in effect, the overhead costs relative to the time saved. In both cases, the real basis is the time factor ; but with money piecework it is necessary to grade the labour required for each job, for, if this is not done, earnings may be distorted, as when a youth does a job which carries a rate fixed on the basis of its completion by an adult. Money piecework prices also tend to become involved with fractional calculations in the case of simple routine tasks. The piece bonus method also has the advantage of not requiring alteration when hourly rates of pay are revised, whereas in similar circumstances where money piecework applies, all the piecework prices have to be altered.

Differential Piecework.—As an alternative to straight piecework, a high piece-rate system may be adopted, so that some of the overhead savings already mentioned are, in effect, used to benefit the worker. In these cases, total wages are calculated by reference to the number of pieces produced multiplied by $1\frac{1}{n}$ times the basic rate per piece, where $\frac{1}{n}$ is some fraction such as one-third.

Differential piece-rates may be offered as an extension of the high piece-rate system, by fixing a flat rate for all outputs up to a fixed percentage of the standard, a high piece-rate for outputs beyond this level and higher rates as output exceeds predetermined levels.

The Gantt Task and Bonus System is a straight piecework system with an additional incentive, so that earnings rise more steeply as the target output is exceeded. The worker who completes the job within the standard time receives a straight piecework payment plus an amount equal to, say, 25 per cent of the standard time at his hourly rate. If he completes the task within the standard time, he also has the time saved available for other work, *e.g.*, assume standard time of six hours and standard rate of 3s.

<i>Time Taken</i>	<i>Basic Payment</i>		<i>Bonus Hours</i>	<i>Bonus Payment</i>		<i>Total Payment</i>	<i>Average Hourly Rate</i>
<i>Hours</i>	<i>s.</i>	<i>d.</i>		<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
7	21	0	—	—		21	0
6	18	0	1.5	4	6	22	6
5	18	0	1.5	4	6	22	6
4	18	0	1.5	4	6	22	6
						5	7½

This arrangement provides a minimum day rate to those workers whose rate of output is less than standard and an extra incentive to industrious workers. The standard is based on the expected output from a worker of average ability. Provided the task is completed within the standard time allowed, the formula is :—

$$\text{Amount earned} = \text{Hourly rate} \left(\frac{\text{Hours allowed}}{\text{Hours allowed}} + \frac{\text{Fixed percentage}}{\text{of hours allowed}} \right)$$

The Halsey System and the Rowan System are both related to the time saved. A specified time is allocated to each task and a proportion of the time saved is paid to the worker. The basic time rate is guaranteed as a minimum payment. With the Halsey System, day rate is paid, plus a proportion of time saved (say from quarter to half) at day rate as an incentive. In some cases, the bonus is calculated on half the time saved at the full base rate ; in others, on the whole time saved at half the base rate. Under the Weir System, which is similar, this proportion is usually one-half. Thus the incentive is regressive, as the harder the operator works the less he gets per piece. The fact that the wage cost is not constant as with straight piecework, but unit costs fall as output increases, makes the system useful for temporary application where some scheme is needed before accurate rate-fixing can be established.

The Rowan System varies from the Halsey System in that instead of sharing the day-rate value of time saved, the worker is offered a definite percentage of his time rate in proportion to time saved, *i.e.*, if he completes a task with x per cent saving of standard time, he gets a bonus of x per cent of his time wage. Here, again, there is a day-rate system, plus a bonus equal to the hourly rate for a proportion of actual time equal to the percentage of time saved. As the percentage of time saved can never rise to 100 per cent of time allowed, it is impossible to earn 100 per cent bonus with this system ; whereas there is no such upper limit of bonus under the Halsey System. The bonus under each scheme is equal only where the percentage of actual

time to allowed time on the Rowan Scheme equals the fixed percentage allowance under the Halsey Scheme, as in case (B) below.

Time allowed, 10 hours.

Hourly rate, 2s.

Halsey wages = Hourly rate (time taken + 50% time saved)

Rowan wages = $\left(\frac{\text{Hourly rate}}{\text{Time taken}} \times \text{Time taken} \right) \left(1 + \frac{\text{Time saved}}{\text{Time allowed}} \right)$

	<i>Time Taken Hours</i>	<i>Time Saved Hours</i>	<i>Time Saved %</i>	<i>Halsey Wage s. d.</i>	<i>Rowan Wage s. d.</i>	<i>Halsey Hourly Rate s. d.</i>	<i>Rowan Hourly Rate s. d.</i>
A	2½	7½	75	12 6	8 9	5 0	3 6
B	5	5	50	15 0	15 0	3 0	3 0
C	7½	2½	25	17 6	18 9	2 4	2 6
D	10	—	—	20 0	20 0	2 0	2 0
E	12½	—	—	25 0	25 0	2 0	2 0

Generally, the Halsey, Weir and Rowan Systems tend to retard the quicker workers, who feel they will not get all they deserve for doing their best. The systems are, however, useful as transitional systems. The Rowan System is particularly suitable when the estimated time to be taken over the work is liable to be upset by circumstances which cannot be accurately assessed. It has been described as a good scheme for slow workers, learners and "loose" rate-fixers.

There are also various point or unit systems, under which a point standard is set by time studies and graded to normal efficiency with adequate allowances for rests and delays. In some schemes, a standard minute represents a minute's output from a normal operator working under average conditions and using the most efficient method actually available. The standard minute may be assessed as one point, so that one hour's work for an average operator is expressed as 60 units. The standard unit is sometimes given a special name. It may simply be abbreviated as a s.m., being the amount of work plus relaxation assigned to one minute, so that the day-rate standard is expressed as 60 s.m.'s per hour, with an expected production rate from the worker of 80 s.m.'s per hour. In some cases, part of the premium earnings are paid to supervisors; for example, earnings over the time rate may be divided between direct and indirect workers responsible in the ratio of, say, 3 : 1, with a guaranteed time rate. In other cases, the whole premium earnings are paid to the directly productive workers concerned.

With a unit system, earnings may be based on the average hourly performance; for example, 3,000 units earned in forty hours where day rate is 2s. per hour on a scale of "60". Performance = $\frac{3,000}{40}$

= 75 u.p.h., giving a bonus of $\left(\frac{75 - 60}{60} \right) 100$ per cent = $\frac{15}{60} \times 100$ per cent = 25 per cent or 6d. per hour, making an inclusive rate of 2s. 6d. per hour or £5 for forty hours. Alternatively, earnings may be assessed at a flat rate per 100 units, thus making the system of payment more easily understood than where the worker's performance is calcu-

lated. For example, on the basis of the previous example 100 units are worth $\frac{100}{60} \times 2s. = 3s. 4d.$ and earnings are $\frac{3,000}{100} \times 3s. 4d. = £5$ as before. If desired, earnings may be assessed at a progressive flat rate per 100 units. This, in effect, gives a merit bonus in addition to the ordinary bonus to encourage competition among the more superior workers, for it is usually the superior worker who can easily raise his output. Generally speaking, the greater the skill the greater is the maximum speed, although the skilled worker without a special incentive tends to work at such a speed as to maintain a good reserve. This kind of differential plan makes some allowance for the incidence of P.A.Y.E. on higher earnings and puts a premium on attendance as well as on hard work. For example :

<i>Units Earned</i>	<i>Equivalent Performance if 40 Hours are Worked</i>	<i>Differential Rate per 100 Units</i>
		<i>s. d.</i>
2,400	60	3 4
2,800	70	3 5
3,200	80	3 6
3,600	90	3 9
4,000	100	4 1
4,400	110	4 6
4,800	120	5 0

Many arrangements are possible. For example, when the task is to keep automatic plant in continuous operation, bonus may be assessed on a premium basis starting at x per cent of full plant utilization. Stoppages of plant would then involve a loss of premium, but not of day rate ; but care and attention to maintenance and operational requirements would be rewarded by premium payments.

These plans are generally applicable both to individual and group incentive systems, except that an apportionment of bonus is needed in the group system, *e.g.*, total units earned 14,250 in 190 man-hours = 75 u.p.h., giving a bonus of, say, $\frac{15}{60} \times 100$ per cent = 25 per cent of day rate.

<i>Member of Group</i>	<i>Actual Hours</i>	<i>Hourly Rate</i>	<i>Total Day Rate</i>	<i>25% Bonus</i>
		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
A	40	2 0	80 0	20 0
B	32	2 0	64 0	16 0
C	40	2 6	100 0	25 0
D	40	1 6	60 0	15 0
E	38	2 0	76 0	19 0
	<hr/> 190		<hr/> 380 0	<hr/> 95 0

The wage scales offered to learners require special consideration, for piecework is usually discouraging to beginners and time-lags between wage increases tend towards a high rate of absenteeism, whilst the loss

of operators before they become proficient is serious and costly. As day-rate guarantees do not provide an incentive to progress, some arrangement is desirable to overcome this difficulty. Moreover, learners vary in their natural ability and their experience in work which has some similarity of work-content. Accordingly, incentives for learners should be adapted to the personal characteristics of each. A practical difficulty which arises from the management aspect concerning learners comes from the difficulty of planning a smooth flow of work in view of uncertain outputs.

The unit system based on a day-rate standard of 60 units per hour may be suitably adapted to meet the needs of learners. An incentive bonus of $33\frac{1}{3}$ per cent would still be available for a performance of 80 units per hour, but the point at which bonus payments would begin could be reduced below the usual day-rate standard of 60 units per hour, according to the apparent ability of the learner and the period of his service, thus providing a family of incentive scales to meet practical considerations. For example, for a learner without any previous useful experience, the basic standard could be reduced to 20 units per hour and increased over the planned learning period by gradual steps to 30, 40, 50 and, finally, 60 units per hour, the normal day-rate standard. Learners having some previous useful experience to their credit and/or natural capacity for the work could be started at a higher step. An alternative scale is one which gives a progressive increase from guaranteed day-rate to just above the level of day-rate performance over the learning period, so that the normal scale is used after a predetermined time period.

Measured Daywork.—Measured daywork reasonably applied provides an incentive with stability factors which smooths out earnings, minimizes rate-fixing queries and encourages quality production. Under this scheme, the hourly basic wage and bonus for the past three months may be paid for the next three months. The weekly output figures may be used to ascertain the moving average and the figure so determined at the end of the three months period may regulate the bonus rate for the next quarter, subject to adjustment for such factors as work quality and co-operativeness. On the other hand, where measured daywork is stringently applied to current output in association with the conveyor system of production, high outputs may be secured and high rates of pay may be obtained by those able to stand the strain of working under precisely regulated conditions, in which day rates are assessed in relation to exceptional speeds and not normal day-rate standards.

Service Personnel.—In the search for efficiency, too much attention should not be paid to the wide distinction implied by the terms “productive” and “non-productive” labour, for both direct and indirect workers are equally essential. Although the provision of improved service to direct workers often reduces overall unit costs by achieving proportionately greater outputs, there is always need to guard against improving operational times by expending more than is economical in other respects ; for example, in excessive tooling costs. It is important to ensure that any increase in the ratio of indirect to direct workers will be reflected in greater output, preferably at a reduced overall unit cost. Any worthwhile system of incentives for indirect workers should suc-

ceed in achieving this objective. At the same time, it is wrong in principle and destructive of morale to keep the earnings of indirect workers down to narrow limits whilst pieceworkers are allowed to make high earnings.

Rather than to pay indirect workers engaged in service activities such as setting, trucking and progressing the same percentage bonus as direct workers, it may be preferable to modify the bonus percentage by the ratio of the actual indirect man-hours to the budgeted indirect man-hours for the number of direct man-hours concerned. For example, if the standard or budgetary number of indirect man-hours is 2,000 and the actual number of indirect man-hours employed is 2,400, whilst the percentage bonus payable to direct workers is 20 per cent of their basic wages, then the percentage bonus payable to indirect workers may be assessed as $\frac{2,000}{2,400} \times 20 \text{ per cent} = 17 \text{ per cent}$

of their basic wages. When the ratio of indirect to direct workers is strictly controlled, it may be advantageous to reward indirect workers as a whole with a fraction of the combined earnings of all direct workers in excess of a target rate, with additional fractions for increasing targets. Alternatively, the fraction given may refer only to the combined earnings of all direct workers who individually produce in excess of a target rate. In the interests of administrative economy, a fairly uniform scheme is desirable for all indirect workers. This may appropriately incorporate a system of merit rating.

Many schemes for providing incentives to supervisors in the factory have the disadvantage that when the supervisor is highly pressed, as when faced with an influx of learners, his bonus is much less than when everything is going smoothly. For this reason, a preferable arrangement is to provide incentives on the basis of merit ratings, in which departmental output is taken into consideration as one of several factors, another of which may cater for the incidence of learners.

So far as maintenance personnel are concerned, as these are usually more concerned with doing their own particular job than with factory output, the incentive reward may take the form of a task bonus. Alternatively, the bonus may be based on more than one factor; e.g., a "plant factor" reflecting machine availability and a "production factor" associated with the productive output of the factory. In order to avoid wastage of man-power in ensuring plant availability, a deduction may be made where the man-hours employed on maintenance exceed a predetermined standard set-up. Here, again, a merit rating plan may be adopted instead, whereby consideration is given to such other factors as quality of workmanship and co-operativeness. Alternatively, the unit system may be modified to cover maintenance workers, when the work content is determined by analytical estimating (see page 89). Experience has shown that work contents derived from analytical estimating, whilst satisfactory if arranged over a period, sometimes prove to be over- or under-stated for particular jobs owing to the absence or otherwise of practical difficulties of working. As high quality of workmanship is vital on maintenance and it is sometimes difficult to inspect completed jobs, the incentive offered should not detract from quality. On the other hand, it should not overlook the

incidence of hidden difficulties in particular jobs. Accordingly, the payment of bonus could commence at, say, 25 per cent less than normal day-rate standard, say, at 45 units per hour, with proportionate bonus payments for intermediate performances up to the normal incentive standard of 80 units per hour when the usual bonus of $33\frac{1}{3}$ per cent would be paid, after which the rate at which bonus increases with performance would be halved with no increase in bonus rates beyond a performance of 120 units per hour.

Labour Analysis

A man-power analysis sheet of the kind exemplified in Table 4A may be completed for each factory section, or division, as well as for the factory as a whole, to supply statistical information. Subsidiary statistics may also be usefully prepared. For example, time expended by producers off their usual tasks may be analysed under such headings as waiting work, waiting setting, waiting material ; setting, cleaning, rectification work, etc. Individual performances may also be analysed according to the number of producers involved in each performance group. Whilst this analysis sheet conveniently summarizes the information in a general way, it is important that shop supervisors should have more detailed information (see Table 4B), and, if possible, the contribution made and the cost incurred by each worker. This may be readily arranged through the medium of clock cards where individual incentives are used ; but where group incentives are in being, this can be done only where output statistics are kept for each worker.

Profit Sharing and Co-partnership

Profit sharing applies when the employer pays a predetermined part of ascertained profits to employees, either indirectly in some way or directly as a bonus on remuneration through the normal process of P.A.Y.E. It does not usually require any shareholdings by employees. Some schemes are really in the nature of prosperity sharing schemes, as when profit sharing begins after a minimum dividend has been paid to ordinary shareholders.

Co-partnership arises as a closer association, as when shares are issued to employees on favourable terms relative to their current market price, possibly by creating a special class of employees' shares. The scheme may be based on irrevocable trusts or remain fully flexible and subject to termination at the will of either party. However, progress in this respect is impeded, because the difference between the issue price and the market price attracts the standard rate of income tax. An alternative arrangement may be adopted which gives employees a share in the ownership of the company and uses the level of profits to regulate the rate of sharing. A proportion of each year's profits, after satisfying a minimum dividend payment to ordinary shareholders, may be allocated amongst employees who have completed a qualifying period of service with the company, according to their remuneration and payment of income tax at their appropriate personal rate. The company would issue additional capital to trustees for the beneficiaries in exchange for the net amount of the profit allocation and, in turn, the trustees would eventually issue parcels of shares to employees as

TABLE 4B
PRODUCTION TIME AND COST ANALYSIS

	Total	Employment Class			Product Group							
		Skilled	Semi-skilled	Unskilled	A	B	C	D	E	F	G	H
Actual hours . . .												
Standard hours . . .												
Performance . . .												
Actual cost. . .	£	£	£	£	£	£	£	£	£	£	£	£
Related cost . . .												
Other costs . . .												
Total cost . . .												
Standard cost . . .												
Cost performance . . .												
Per cent absent = No. absent × 100 % No. on payroll	Per cent lateness = Man-hours lost by lateness × 100 % No. at work normal hours		Per cent off-production = Hours on related work × 100 % Total hours worked		Performance = Standard hours earned × 100 % Hours worked on production							

accumulated for their benefit. The cash represented by share distributions to the trustees is thus ploughed back into the company, with the advantage of retaining funds in the business at a cost usually much less than their earning capacity. The equity of outside shareholders is fractionally reduced to the benefit of qualifying employees. Although such schemes tend to identify employees more closely with the interests of the company by emphasizing the essential co-partnership of capital and labour, constitute a form of persuasive saving and may teach employees something about the techniques of capitalism, they do not compare in principle with voluntary saving and freedom of investment. Accordingly, a more realistic way of stimulating saving and encouraging the development of a property-owning democracy would be to institute company saving schemes on a unit trust basis with a choice of investment and enhance savings from earnings with company contributions from profits after satisfying equity requirements.

Notwithstanding considerable propaganda before the war in favour of profit sharing and co-partnership schemes, relatively few firms adopted them. Even with these, the mortality rate was high because of poor labour-management relations, particularly when profits were lacking. Profit sharing and co-partnership schemes can hardly be a crucial factor in directly improving productivity, because profit rewards, although giving the appearance of fair shares to employees, are remote from personal effort and are usually influenced by factors beyond the control of individual employees. Nowadays, however, there exists a general recognition of the need for excellent industrial relations on the basis of which a policy of full employment which benefits labour and capital is dependent. Co-partnership in one form or another is likely, therefore, to be a gathering force which will do much to cement the relationship between capital and labour to the benefit of both.

A useful financial incentive for managers and senior executives may be provided by paying a percentage bonus on salary, the percentage being derived from the following simple formula.

$$\text{Percentage bonus on salary} = \frac{\text{trading profit}}{\text{average investment}} \times 100\%$$

For example :

Trading profit	£ 100,000
<hr/>	
Average investment :	£
Buildings	150,000
Plant	250,000
Stock and work-in-progress	100,000
	<hr/>
	500,000

$$\text{Percentage bonus} = \frac{100,000}{500,000} \times 100\% = 20\%$$

This arrangement provides an incentive to increase profits by maximizing output and avoiding wastages of all kinds and encourages the economical use of space and plant, as well as tending to avoid unnecessary investment of working capital in stock-in-trade and work-in-progress. The scheme should be supported with full information as to progress, difficulties, achievements and prospects of the company.

CHAPTER 6

INDUSTRIAL RELATIONS

REMUNERATION to employees may take the form of direct financial rewards, consisting of a basic wage or salary, either alone or with incentives such as merit rates and/or bonus payments, together with "fringe" benefits by way of welfare facilities, sickness benefits, pensions and life assurance schemes, recreational and canteen facilities. It is undoubtedly an entirely false economy to pretend that a saving is made when as little as possible is paid in remuneration, for consider the hidden costs resulting from dissatisfaction with rates of pay which leads to absenteeism, poor teamwork and high labour turnover, reflected in excessive overhead expenses and a reduced volume of turnover. It is likewise uneconomic to base remuneration on intuitive assessments of the relative importance of jobs, for these are often erroneous. Inequalities invariably arise when remuneration is not systematically assessed ; similar work may be differently rewarded, whilst jobs with similar titles may be equally remunerated yet have different duties attached to them. The worker, when he opens his pay packet, not only considers whether the wage is a fair reward for work done, but he compares his earnings with those of his colleagues and so judges whether any appreciable differences truly reflect, in his opinion, difference of skill or effort. If, in either case, he considers the reward unfair he becomes discontented. It is obvious that people who realize they are being fairly treated are likely to work better than those without this certainty. Furthermore, the superior worker is more likely to remain with the firm in which he can see avenues of advancement open to him.

In order to ensure the absence of wage inequalities which generate discontent and to avoid the high costs which arise from excessive labour turnover and interruption to a smoothly running organization, salaries and wages should be, at all times and for all practical purposes, in a state of complete equilibrium—internally, so far as rewards are appropriate to relative skills and efforts ; externally, so as to enable the business to be a successful competitor for local labour resources, or, at least, to negate the attractions of other firms to existing employees. A difficult problem arises, of course, when a firm is competing locally for people for whose services other firms are offering relatively high rates of remuneration, and is, at the same time, competing with firms which are engaged in the same industry and situated in areas with more favourable man-power resources in this respect. In these conditions, the relatively high labour cost per man-year must be balanced by increased individual and corporate productivity. Occasionally, the employment of greater skill and effort than appears requisite may well result in lower unit costs, as, for example, when a high quality of work is of paramount importance.

It is, therefore, always advantageous to keep under constant review all jobs and their remuneration, not only to maintain efficient methods and to secure cost control, but, not least, to reap the advantages which derive from a realistic personnel policy whereby a fair day's pay for a fair day's work is assured and meritorious service is suitably rewarded. In fact, a fair and equitable distribution of the available pay-roll can be secured only through the establishment of a consistent policy, based on a properly administered and sound wages structure which provides a logical rather than an arbitrary basis for pay negotiations. It is unfortunate in the real interests of economic and social progress that trade unions, particularly within the widespread engineering industries, are so slow in making an endeavour to set in order the chaotic wage structure which exists and have been mainly preoccupied in making periodical claims for general increases which are unrelated to personal ability or merit and have little regard for the national economy.

As the practice of collective bargaining is, however, widespread in this country, it seems appropriate at this stage to review the general pattern of industrial relations in this respect before proceeding to discuss the development of a structure of remuneration based on job evaluation and financial incentives, including merit rating.

Collective Representation

The principle of "collective bargaining" through voluntary organizations of employees and workpeople competent to represent their members has been accepted for many years by the State and industry as the basis of settling wages and conditions of employment. In fact, the State has actively encouraged the establishment of joint agreed machinery in industry for the prevention of disputes and the settlement of wages and working conditions, whilst the law has established the relationship between employers and workers as a strictly civil relationship between equals. Accordingly, there has developed within industry an increasingly concentrated framework of collective representation through trade unions on the one hand and employers' federations on the other, whilst "unorganized" sections of workers have been covered by the State in the setting up of Wages Councils. The practice of collective bargaining is, however, applied to a much less extent in the settlement of salaried remuneration generally and has no application in settling the salaries of management staffs in industry.

There are at present over 700 trade unions with an aggregate membership in excess of nine million, although two-thirds of the membership is carried by only seventeen unions. The constitution of a trade union is governed by its rules, which may be compared with the memorandum and articles of a company, although a trade union is not strictly a corporation. Each trade union is an autonomous body with an organizational structure based on the local branch or lodge. Members have a right to attend and participate in branch meetings and to elect officers and committees to deal with localized activities. Many unions have workshop representatives who contact new entrants, collect union dues, interview defaulters and keep their local branch

informed in matters affecting the interests of members, particularly with reference to any apparent intrusion upon recognized practices. Workshop representatives may form deputations to management about grievances and may organize shop meetings to discuss emergent problems. Members of local branches elect their delegates to district and national committees, to which questions of wider interest are forwarded. Local branches often appoint representatives to district trades councils which deal with matters affecting their common interest. Union policy as a whole is generally determined at an annual conference of the union. Some unions may not strike without the sanction of a ballot vote or delegate conference, although some, like the Electrical Trades Union, which holds national and negotiating rights in at least thirty-six industries, leave strike decisions to their executive.

It is indeed a tragedy that the general apathy exhibited by the average trade unionist in failing to participate in the democratic process of electing trades union officers, paid officials and delegates, is enabling the Communists to obtain greater control over union policies and actions, with the political objective of furthering the one-party servile State, rather than the welfare of trades unionists. It is well known that Communists seek to disrupt the industrial organization of the country for their own political ends, and care little, if anything at all, if strike action or bans on overtime-working and piecework lead to loss of export markets and mass unemployment, for this, they hope, will drive the hunger-marchers into the net of Communism. Genuine trades unionists should therefore awaken to this insidious infiltration into their heritage and exercise their rights to ensure, not only that the democratic processes of trades unions cease to be abused by Communists, but that British trades unions become a real power of good in helping to improve productivity and competitive vitality, so that the policy of full employment, far from being imperilled, is permanently established with a rising standard of life for the peaceful enjoyment of us all.

There has been a gradual process of consolidation in the evolution of trade unionism such that over the past thirty years the number of unions has been almost halved. The process of consolidation has also resulted in the formation of federations of trade unions, at present about fifty in number, in which the degree of cohesion varies widely. Whilst federated decisions may be required regarding action in labour disputes, the final decision is usually a matter for the union directly concerned. There is also a different kind of federation, mainly of the smaller unions, in the General Federation of Trade Unions, which operates mainly as a mutual insurance organization. This federation was formed to co-ordinate industrial activities and to finance a mutual aid service whereby any federated union may benefit from a central fund on the occurrence of a strike or lockout.

The Trades Union Congress (T.U.C.) is, however, the central co-ordinating body of the trade union movement, as it is at the annual meeting of the Congress that delegates from affiliated unions determine their general policy. The executive body of the Congress is provided by a General Council of members representing the eighteen trade groups

into which the affiliated unions are placed. A general obligation rests upon affiliated unions to keep the General Council informed of trade disputes, particularly those affecting large numbers of workpeople ; but the executive does not intervene in a dispute unless so requested to do by the unions concerned as long as reasonable prospect exists of a satisfactory settlement being reached. The Disputes Committee of the Council settles disputes between affiliated unions upon application for assistance being made, with the threat that any recalcitrant union which fails to observe any findings of the General Council may be suspended or excluded from Congress. A close liaison exists with the Scottish Trades Union Congress, to which some of the larger national unions are affiliated as well as to the T.U.C.

The employers for their part have about 1,800 organizations dealing with labour questions. Some of these are national in scope, covering a particular industry, although the majority are local in character and restricted to a section of an industry. The British Employers' Confederation is the co-ordinating body of the employers' national federations in problems relating to employer/worker relationships. The Confederation represents the British employers at the Annual Conference of the International Labour Organization.

The British Employers' Confederation and the Trades Union Congress nominate seventeen members each to the National Joint Advisory Council. This is an advisory body, meeting quarterly, which has been formed to secure close and regular consultation with the Government with reference to all matters in which employers and workpeople have a common interest. The Joint Consultative Committee of the Council, consisting of seven members from each side, meets as required, together with representatives of the nationalized industries.

Wages Councils

The application of the voluntary principle to the regulation of wages and working conditions has necessarily been modified in respect of certain "unorganized" industries where sweated labour was employed. Under the Wages Councils Acts, 1945-48, which have superseded provisions previously contained in the Trades Boards Acts, the Minister of Labour and National Service may, subject to certain provisions in respect of publicity and enquiry, make an order establishing a Wages Council.

The Minister may take the initiative in asking a Committee of Enquiry to consider the advisability of an order being made by him for the establishment of a Council where adequate voluntary machinery does not appear to exist for effectively regulating the remuneration of any workers, and that in view of their remuneration the course is expedient. In other events, the Minister may set up a Commission of Enquiry upon application being made to him by a Joint Industrial Council or similar body, or jointly by appropriate organizations of employers and workpeople, for the establishment of a Wages Council on the ground that existing machinery is unlikely to continue or remain adequate. The Commission may make a Wages Council Recommendation if it takes the view that the machinery is not and cannot by any

improvements which are practicable be made adequate, or that existing machinery will probably cease to exist or remain adequate so that a reasonable standard of remuneration is not being or likely to be maintained.

Before making a Wages Council Order, the Minister has to publish, in the prescribed manner, notice of his intention. He may make minor modifications to the draft as the result of objections received and make a Wages Council Order accordingly. If he otherwise amends the draft, he must repeat the routine of publishing the proposed order and receiving objections or refer the draft to a Commission of Enquiry, and thereafter, if he thinks fit, make an order either in terms of the draft or with such modifications as he considers desirable. Any Wages Council Order which is made is published in the prescribed manner, together with the report of any relative Commission of Enquiry. These documents are also laid before Parliament and may be annulled by resolution of either House.

The Minister may at any time, by order, abolish or vary the field of operation of a Wages Council, provided he observes the specified procedure. A Wages Council may also be abolished as the result of application made to the Minister jointly by representative organizations of employers and workers which jointly provide machinery adequate and likely to continue adequate for the effective regulation of remuneration and conditions of employment.

The Minister also has power to establish a central co-ordinating committee with respect to two or more Wages Councils, or abolish, or vary the field of operation of, any committee so established. A Wages Council or Central Co-ordinating Committee consists of persons appointed by the Minister, comprising not more than three independent members, one of which is chairman, and a number of others chosen by the Minister, after consultation with any appropriate representative bodies of employers and workers concerned, equally representative of employers and workpeople likely to be affected. The First Schedule to the Wages Council Act, 1945, makes general provision with respect to the constitution, officers and proceedings of Wages Councils.

A Wages Council has a duty to consider and report upon any matter referred to it by the Minister or any Government Department regarding industrial conditions prevailing as respects the workers and employers concerned and may take the initiative in making such recommendations, which must receive the consideration of the Minister or department. A Wages Council may also submit to the Minister "wages regulation proposals" for fixing minimum rates of remuneration, and making provisions for holidays with pay.

Before submitting any wages regulation proposals to the Minister, and after making any necessary investigations, the Wages Council must publish, in the prescribed manner, notice of the proposals. A copy has to be sent to each employer apparently affected whose name and address is known, and he must exhibit a copy of the notice on his premises so that it can be conveniently read by the workers. The Wages Council must consider any representations made to it within the prescribed period before submitting its proposals to the Minister.

Where the Minister receives any wages regulation proposals, he makes a Wages Regulation Order accordingly, unless he decides to refer the proposals back to the Council for reconsideration before so doing. The Minister gives notice of the making of the order to the Wages Council, which in turn gives notice of the order and its contents to all those who are likely to be affected. The notice must be posted up on the employers' premises where it can be conveniently read by the workpeople.

Remuneration paid to workers must not be less than the statutory minimum fixed by the relevant Wages Regulation Order ; except where the Wages Council has issued a permit authorizing the employment of a person who is affected by infirmity or physical incapacity at a lower rate. In some cases, the payment of guaranteed weekly remuneration has been made conditional upon the worker being capable of and available for work and willing to perform such work as he could be reasonably expected to do when work in his own occupation is not available. Some orders enable the employer to give notice in certain circumstances to terminate his obligation to pay guaranteed weekly remuneration ; for example, when work is not available owing to a strike or lock-out or failure of supplies or other circumstances beyond the employer's control.

Wages inspectors have been appointed by the Minister in order to enforce the legal requirements relative to Wages Councils. Inspectors are empowered to require production of wages sheets or other relative records which the employer is obliged to maintain and retain for at least three years. An inspector may require any person giving out work to furnish any information which is within his power as to the names and addresses of outworkers and of persons giving out work. A person may be an outworker in this context even though he himself employs other outworkers. An inspector has power of access at all reasonable times to premises and other places used for giving out work or used for providing accommodation for workpeople. He is empowered to examine any relevant documents and interview persons concerned, but no person is required to give any information tending to criminate himself.

Joint Industrial Councils

In 1916, the Whitley Committee recommended the adoption of Joint Industrial Councils in each industry which would be representative of employers and workpeople, on the basis that a permanent improvement in industrial relations required that workpeople should have greater opportunities of participating in problems affecting their well-being in industry. The formation of District Councils was also proposed, representative of associations of employers and workpeople, whilst the formation of works committees, representative of management and men in particular establishments, was also recommended. Schemes of this kind have been adopted mainly for central and local government employees and not in such industries as engineering, iron and steel, shipbuilding and others where the system of collective bargaining was already entrenched through established trade unions and employer

organizations. However, as a result of the Whitley Report, joint workshop committees were established in a number of industries, although not as part of a Joint Industrial Council structure. The numerous councils in existence are based mainly upon a model constitution which prohibits any stoppage of work in case of dispute until the matter has been considered by the Council or by other appropriate machinery.

Collective Bargaining

The usual practice in "unorganized" industries is for a person applying for work to accept or decline any offer made by the prospective employer without regard to any collective interests. In industries where collective bargaining prevails, all employees enjoy equality of treatment, whilst each employer is protected against unfair competition from affiliated firms, whilst the terms and conditions of collective bargains are applied to trade unionists and non-unionists alike and are usually observed by employers who are not a party to them. This system of collective bargaining has resulted in the emergence of machinery for the avoidance of strikes and lock-outs, which depends on the principle of mutual consent supported by loyal acceptance on moral grounds only on both sides. As space considerations make it impracticable to deal adequately with all these practices throughout industry, the procedures which apply to the widespread engineering industry will be considered in some detail.

The engineering industry is largely covered in matters of collective bargaining by agreements between the Engineering and Allied Employers' National Federation and its various affiliated local associations, representing some 20,000 firms, on the one hand and the trade unions on the other—principally the Amalgamated Engineering Union, supported by some thirty-eight other unions, representing altogether three million workers, some having their major interest in other industries, with unskilled workers represented by the Transport and General Workers' Union and the National Union of Municipal and General Workers. The unions named, together with the Electrical Trades Union and the Amalgamated Union of Foundry Workers, also cover women workers in the engineering industry. Most of the unions, through their affiliation in the Confederation of Shipbuilding and Engineering Unions, form a national negotiating group for the engineering industry.

The size of the employers' and, more particularly, the unions' organizations, impairs their effectiveness as instruments for collective bargaining as currently practised. This fact is evidenced by the chaotic wages structure at present existing, in which little consideration is given to the real demands of each job relatively to each other job. Criticism is generally made of the fact that unjustifiable variations occur among district wage-rates, that piecework rates are too complicated and that incentives and skilled differentials are inadequate. Moreover, actual earnings in many cases have little relation to the basic wage structure, because competing employers have altered the pattern of earnings by making differential inducements for scarce

labour. In spite of the fact that in 1948 a Court of Enquiry into a dispute in the industry recommended a simplification of the wage structure, no progress in this direction has been made and anomalies are now more widespread than ever. The Confederation should take the lead in securing a permanent industrial peace by using its undoubted knowledge and influence to settle the difficult question of wage levels and differentials. This could be done by preparing, as a basis for negotiation with employers, a plan of job evaluation for the many different jobs within its purview and following this up by negotiating acceptable methods of merit rating and incentives. This task, great as it appears, would become increasingly simplified as progress is made, for there is more uniformity in basic job demands than is apparent on the surface.

National agreements cover provisions regarding the working week, overtime, night and shift working, holidays, payment by results and other matters. The agreement which established a five-day working week of forty-four hours, reaffirmed the guaranteed week of thirty-four hours provided in a previous national agreement. The guarantee applies to all hourly rated manual workers who have been continuously employed by the same federated firm for not less than four weeks, provided they are capable of, available and willing to perform satisfactorily, during working hours, the work associated with their usual occupation, or reasonable alternative work where their usual work is not available. The wages guaranteed are those equivalent to their inclusive hourly plain time rate for thirty-four hours in any pay week, with a proportionate reduction in respect of a pay week in which a recognized holiday occurs and with automatic suspension of the guarantee in the event of a dislocation of production as a result of strike action in respect of workpeople on strike or laid off by the strike in the establishment where the strike occurs. Payments by result earnings have to be taken into account for assessing whether any make-up is required under the guarantee. Whilst the agreement does not cover part-time workers in respect of the guaranteed week, it was stated as being administratively desirable that part-time workers should receive a relative guarantee. It was also agreed that where the employment of an hourly rated manual worker who has been continuously employed by a federated firm for not less than four weeks is terminated by reasons of redundancy or the decision of the worker to leave, the duration of notice given must be equivalent to the non-overtime weekly hours currently operating in the establishment.

In the National Agreement in respect of overtime and nightshift, the Federation and the trade unions deprecated systematic overtime as a method of production, whilst providing that when overtime is necessary no union workman shall be required to work more than thirty hours overtime in any four weeks after full shop hours have been worked, allowance being made for time lost through sickness, absence with leave or enforced idleness, except that overtime shall not be restricted in the event of breakdowns, repairs, replacements, alterations, trial trips and completion of work against delivery dates. It was also agreed that employers shall have the right to decide when

overtime is necessary, the workpeople or their representatives being entitled to bring forward questions under the Provisions for Avoiding Disputes, but, in the meantime, the overtime shall proceed.

The National Agreement on holidays states that each manual worker shall receive sixteen days' holiday per annum made up of two weeks (ten days) annual summer holiday and six Bank or other paid holidays, to be arranged locally, with the intention that every worker shall be encouraged to take an annual holiday. The agreement also requires the accumulation of a holiday credit for every manual worker employed in a federated establishment equal to one-fiftieth of the appropriate consolidated time rate. The credits are accumulated in a special fund maintained by each firm and the accumulated amount is payable to each employee at the recognized summer holiday period or otherwise as mutually agreed. *Pro rata* accumulations are made where less than a normal working week is worked. The appropriate holiday allowance is credited for working hours lost through sickness or accident for a period up to six weeks in any one year. Payment is also made to manual workers in respect of the six Bank or other holidays *per annum* ; except to those who do not qualify by failing to report for work on the working days immediately preceding and following a holiday unless satisfactory evidence is produced to excuse their absence.

Other agreements have established national minimum time rates for skilled and unskilled classes of workers, whilst maintaining craft differentials provided for in terms of national or local agreements or by custom or practice above the minimum skilled time rate and the maintenance of recognized district differentials for semi-skilled workers over the minimum unskilled time rates. Consolidated time-work rates have been fixed in place of the former base rates and national bonus and these apply for the purpose of calculating overtime and nightshift premiums and premiums in respect of work done on holidays. Minimum consolidated time rates also apply to semi-skilled workers, bearing recognized national, local or domestic relationships to the rate of the unskilled labourer or the skilled worker. The agreements also maintain individual merit rates paid to a worker over and above the recognized rate of his class as a reward for his merit. Extra payments also apply to particular classes of workers.

In the case of adult male workers who are paid by results, piecework prices or times should enable a worker of average ability to earn at least 45 per cent on his basic rate, it being accepted that various methods prevail of determining piecework prices and times. In addition, pieceworkers also receive an hourly supplement on a flat rate basis, the basic rate and hourly supplement being taken into account in calculating overtime, nightshift and holiday premiums, holiday credits and holiday payments. Individual merit rates, together with craft and district differentials, also apply. Piecework prices or bonus or basis times are fixed by mutual arrangement between the employer and the worker concerned and pending an arrangement regarding the price, bonus or basis time the worker must proceed with the job in accordance with the figure allowed by the management.

The fixing of the figure is regarded as being essentially a domestic matter and the agreement expresses the desirability that if exception is taken to a price, bonus or basis time proposed by the management, the proposal should be justified wherever practicable or feasible by an actual demonstration on the part of the management. Piecework prices, bonus or basis times once established are unalterable unless there is a mistake in the calculation on either side, or the material, means or method of production or the quantities are changed, or a mutual agreement is made between the parties in the same way as a new price is arranged. It is also provided that no debit balances shall be carried forward beyond the mutually recognized period of settlement.

Age percentages apply to rates fixed for apprentices, boys and youths and are related to the consolidated minimum district time rate established for the skilled fitter, except that in the case of foundry workers the age rates are related to the moulders' consolidated minimum district time rate.

The wages of women doing work normally engaging the services of women are the subject of agreements between the employers' federation and various unions. There is a national schedule of women's wages appropriate to junior age groups. Under the agreement providing for the extended employment of women, those who are able to carry out the work of the men whom they replace without additional assistance or supervision are entitled at the end of a probationary period of thirty-two weeks, during which their wages are increased in three stages, to an amount equal to the full rate of those workers. Where the women are unable to carry out their work without additional supervision or assistance, the rate of pay is negotiable according to the nature of the work and the ability displayed. However, women who enter employment fully qualified to perform, without further training and without additional supervision or assistance, work previously regarded as men's work are paid the rate appropriate to the male labour they replace. Females employed on boys', youths' or apprentices' work under the Extended Employment of Women Agreement are entitled to the greater of either the national scale of wages of female workers, or the boys' and youths' scale of wages.

There has gradually developed in the engineering industry, a number of customs and privileges which are ancillary to all formal agreements in respect of industrial relations and are concerned amongst other things with the craftsman's status and his right to certain jobs. A temporary relaxation of these customs has been provided by an agreement recently revised between the federation and the Amalgamated Engineering Union providing for the dilution by semi-skilled labour of work otherwise reserved for skilled men. Reservations in the agreements provide for a register to be kept of changes after agreement with shop stewards and endorsement by a representative of the federation and a local union official, and for an undertaking to be given by the company concerned that as and when skilled labour becomes available restoration to the pre-agreement practice shall be made.

The Engineering and Allied Employers' Federation has various

agreements regarding employees other than manual workers, with such unions as the Clerical and Administrative Workers' Union, the National Association of Clerical and Supervisory Staffs, which is the clerical section of the Transport and General Workers' Union, the Association of Engineering and Shipbuilding Draughtsmen, the Association of Supervisory Staffs, Executives and Technicians, and with the Association of Scientific Workers. Whilst there is no national agreement on the subject of salaries of clerical workers, what is known as the "Manchester Agreement", a local agreement entered into between the Manchester Association and the Clerical and Administrative Workers' Union, may be regarded as establishing the minimum standard of clerical salaries in the engineering industry. The scale does not, however, provide agreed minimum salaries beyond the age of twenty-one years. Minimum provincial and London scales exist for the salaries of draughtsmen and female tracers who come within the scope of the agreement with the Association of Engineering and Shipbuilding Draughtsmen on the completion of their apprenticeship at age twenty-one or nineteen respectively. Apprentice draughtsmen are entitled to receive a wage not less than that paid to shop apprentices of corresponding age, as well as to enjoy the benefit of staff working conditions. There is also a minimum scale of salaries applicable to male scientific and technical staff workers at each age from twenty-one to twenty-five years who come within the scope of the agreement between the Federation and the Association of Scientific Workers.

Each union is necessarily guided by the terms of its constitution and its relationship with other unions in the practices and procedures adopted in furthering the interests of its members. There are agreements between the Federation and the various trade unions concerned providing for an agreed form of procedure for avoiding disputes. The agreement in respect of manual workers is based on the two general principles that the employers have the right to manage their establishments and the trade unions have the right to exercise their functions, and that whilst, in the process of evolution, provision for changes in shop conditions is necessary, it is not the intention to create any specially favoured class of workpeople.

The procedure for avoiding disputes is so designed that at each stage of the proceedings the question raised is removed further from the seat of dispute without, however, any recourse to an outside party until all the domestic stages of the procedure are completed and without any stoppage of work whatsoever until the whole procedure has been exhausted. The procedure for manual workers applies to general alterations in wages, in the general working week and in working conditions which are the subject of official agreements.

The agreement provides for the appointment and recognition of shop stewards by the trade unions concerned from and as representative of their members employed in the establishment. The names of the shop stewards and the shop or portion of a shop in which they are employed and the trade union to which they belong have to be intimated officially by the trade union concerned to the management on election. A works committee may also be established in each establishment consisting of

not more than seven representatives of the management and of the shop stewards respectively, the shop stewards for this purpose being nominated and elected at least annually by ballot of the workpeople, members of the relative trade unions, employed in the establishment. The agreement provides that shop stewards shall be subject to the control of the trade unions and shall act in accordance with the rules and regulations of the trade unions and agreements with employers so far as these affect the relations between employers and workpeople. It also provides that shop stewards shall conform to the same working conditions as their fellow-workers, except that in connection with the agreement they shall be afforded facilities to deal with questions raised in the shop in which they are employed and shop stewards elected to the works committee shall have similar facilities in connection with their duties, and in the course of dealing with these questions may, with the previous consent of the management reasonably to be given, visit any shop in the establishment.

The procedure provides that on any question arising the worker concerned must first discuss it with his foreman. Failing settlement, the question must then be taken up with the shop manager and/or head shop foreman by the appropriate shop steward and one of the workers directly concerned. If a settlement is not reached, the question may be considered further at a meeting of the works committee. In the absence of shop stewards or works committees, the employer should receive deputations of workmen without unreasonable delay. The local permanent official of the union may appear at this stage, in which event a representative of the Employers' Association must attend. Failing settlement, either party may refer the question to a local conference, to be held normally within seven working days of demand, at which local representatives of the Employers' Association and the local or district or area officials of the trade unions concerned conduct the case. There is finally a Central Conference to which the question in dispute may be referred. Central Conferences are held on the second Friday of each month, usually at York, at which only national representatives of the Federation and of the appropriate unions are normally present, although local representatives may attend in a consultative and advisory capacity. The Central Conference may make a joint recommendation to the constituent bodies. Questions may be referred back and so on until a decision is reached either to agree or differ ; but until the procedure is exhausted it is provided that there shall be no stoppage of work either of a partial or a general character.

Either party may raise a question at a local conference called for this purpose. Confederation officials may deal with local questions which are common to several affiliated unions which are individually parties to the Provisions for Avoiding Disputes. A local secretary of the Confederation may apply for a local conference provided the affiliated unions concerned are agreeable. Likewise, the general secretary of the Confederation may refer questions outstanding from local conference to a central conference ; but the Confederation acts merely as a co-ordinating body, for the settlements are regarded as union settlements.

There is a special procedure for craft apprentices, boys and youths under twenty-one years of age, who are members of the unions affiliated to the Confederation. Apprentices serving under indentures or written agreements between the employers and parents or guardians are not covered by this agreement, although the Federation has undertaken to recommend the application to them of not less favourable conditions than those which may be agreed. The question of training is reserved for discussion where desired between the executives of the Federation and relative trade union, whilst the proportion of apprentices to journeymen or boys to adults in a workshop or district is not made subject to specific determination. It is also provided that junior male workers cannot be associated with the discussion of any question raised by adult male workers under the Provisions for Avoiding Disputes or with any stoppage of work which may ensue. A similar agreement between the Federation and the Association of Engineering and Shipbuilding Draughtsmen also provides that junior staff workers shall not be associated with the discussion of any questions raised by junior manual workers. In other cases when a question arises, the junior male worker or workers concerned may refer it to the management and, failing agreement, to the appropriate shop steward, who may then discuss the matter independently with the management on his or their behalf and, still failing agreement, thence to the District Organizer and/or District Secretary of the Union. Alternatively, junior male workers may refer a question arising direct to either or both of these officials, who may in turn raise the matter with the Secretary of the Local Federated Association. Failing settlement, the union may bring the question before a Local Conference between the Local Federated Association and adult local representatives of the union. Failing settlement there, the union may refer the question for discussion between the executives of the Federation and of the union.

The Federation also has procedure agreements with the Clerical and Administrative Workers' Union, with the National Association of Clerical and Supervisory Staffs, which is a branch of the Transport and General Workers' Union, and, more recently, with the clerical section of the National Union of General and Municipal Workers as representing clerical workpeople employed in engineering and allied establishments. The agreements do not apply to any supervisory classes in the engineering industry. There is also a similar agreement with the Association of Engineering and Shipbuilding Draughtsmen applicable to draughtsmen members of the society who are engaged either in the drawing offices or in the design, calculating, estimating or planning departments and also to tracers, but not to those employed as chiefs, assistant chiefs, or as principal staff assistants outside the jurisdiction of the chiefs, or as apprentices. This has been extended to cover planning engineers, members of the society, engaged in planning departments, who are capable of and required to analyse a product drawing and decide on the methods to be used for the manufacture of the component parts and the sequence of their assembly, provided they are skilled engineers who have served an apprenticeship. There is a similar agreement between the Federation and the Associa-

tion of Scientific Workers in respect of staffs, members of the society, employed in a scientific or technical capacity, excluding those otherwise covered or employed as heads of departments, deputy heads of departments and principal technical or research staff of equivalent status. The agreements affirm the freedom of employers to become federated and of workers to join the appropriate union or not. The unions recommend their members not to object to work with non-unionist colleagues and the Federation recommends all federated firms not to object to employ union workers on the grounds that they are members of the union. The clerical agreements provide also that no clerical worker shall be required as a condition of employment to make a declaration as to whether he belongs to a union or not. These agreements also provide that only questions affecting the relevant workers should be discussed with the appropriate union in so far as their members are concerned and that none of their unions shall be associated with the discussions concerned with manual workers' questions.

When a question arises, the management and workers concerned in the establishment must endeavour to reach a satisfactory settlement. Failing settlement, deputations of workers concerned shall be received by the management by appointment without unreasonable delay. If the deputation is accompanied by a union official, a representative of the Employers' Association has also to attend. In the absence of agreement, either party may bring the question before a Local Conference to be held between the local association and the local representatives of the union within normally seven days of the application to that end. Thereafter, in the continued absence of agreement, the question may be referred to a Central Conference which may make a joint recommendation to the constituent bodies. No stoppage of work is to take place either of a partial or a general character until the agreed procedure has been completed. The agreements also provide that general alterations in wages, in the working week, or in working conditions, which are the subject of official agreements and which are recognized by the employers and relative employees shall not be effective until the appropriate procedure between the Federation and the unions has been exhausted.

The Federation also has an agreement with the Association of Supervisory Staffs, Executives and Technicians, with reference to those members of the employers' supervisory and technical staffs who are members of the association. The agreement applies where the association has a majority membership in a particular grade in any establishment operated by a constituent member of the Federation. The agreement states there is no necessity for the appointment of any official to represent members of A.S.S.E.T. as a whole in the works of any federated firm. The first approach has to be between the employee and the appropriate representative of the employer. Members of a particular grade are entitled to elect their own representatives to interview the management by arrangement. The intention expressed is that any differences should be settled without reference to the association except when failure to agree has been registered between employer and employee. In the event of failure to reach a local

settlement between the District Offices of the Association and the local Federated Employers' Association, the parties may refer the matter to their respective executive authorities for further negotiations. No reference may be made to arbitration by either side until the agreed procedure has been exhausted. Foremen are usually regarded as members of the managerial structure with a right to raise any questions regarding their remunerations and working conditions with their seniors. Many foremen are voluntary members of the Foremen and Staff Mutual Benefit Society, a condition of membership of which is that applicants or members should not belong to a trades union.

An agreement was made in 1942 between the unions and the Federation for the constitution of Joint Production Consultative and Advisory Committees in federated engineering firms employing at least 150 workers, providing for the regular exchange of views between the management and the workers on matters designed to improve production, to increase efficiency and to make recommendations accordingly. The committees cannot discuss matters such as wages which are covered by agreement with trade unions or are normally dealt with by the approved machinery of negotiations.

State Provisions regarding Industrial Disputes

The State has made provision for assistance in avoiding and settling trade disputes where attempts through normal channels have failed. Evidence of attempts to reach agreement is, however, required before the Minister of Labour will intervene. The procedures adopted may involve conciliation, arbitration and investigation or formal enquiry. The fact that conciliation officers of the Ministry are available encourages the seeking of aid which often limits disputes.

The Conciliation Act, 1896, empowers the Minister of Labour to enquire into the causes and circumstances of any difference which exists or is apprehended between employers and workpeople. He may also arrange for the parties to meet personally or through their representatives, under the presidency of a chairman mutually agreed upon or otherwise nominated, with a view to the difference being amicably settled. On the application of either of the parties, he may appoint a conciliator or a committee of investigation, or, on the application of both parties, he may appoint an arbitrator. If the difference is settled either by conciliation or arbitration, a signed memorandum of the terms of settlement must be drawn up and a copy filed by the Minister. He maintains a register of conciliation boards and is empowered to aid in the establishment of conciliation boards where adequate means do not exist for having disputes submitted to a conciliation board for any district or trade.

The Minister has also wide powers under the Industrial Courts Act, 1919, for facilitating the settlement of trade disputes. These are defined as any disputes or differences between employers and workmen, or between workmen and workmen, connected with the employment or non-employment, or with the terms of the employment, or with the conditions of labour of any person. The term "workmen" includes both manual and clerical workers. The Act provides for a Standing

Industrial Court, which is independent of Government or Departmental control or interference, consisting of persons appointed by the Minister, of whom some are independent persons whilst others represent employers and workmen, with the addition of at least one woman member. In practice, those who usually act are the President of the Court, appointed by the Minister as an independent member, with two whole-time members, one from each of the panels representing employers and workpeople. The other members act only as substitutes or in a case concerning women. Where the members of the Industrial Court cannot agree as to their award, the decision rests with the Chairman acting with the full powers of an umpire. The scope of the Industrial Court has been extended by statutory enactments and by voluntary industrial agreements, which provide for the reference of disputes to the Court and for acceptance of its ruling. The Restoration of Pre-war Practices Act, 1942, also enables the Court to deal with questions referred to it in pursuance of an agreement to modify or waive the obligations imposed by the Act relative to pre-war trade practices. The Exchequer covers the cost of the Industrial Court and its permanent secretariat.

The Act requires the Minister to take any steps deemed by him as being expedient for promoting a settlement of any trade dispute, actual or apprehended, which is reported to him by either party to the dispute. He may with the consent of the parties either refer the matter for settlement to the Industrial Court or to arbitration. He may also refer to the Industrial Court for advice on any matter concerning trade disputes. However, where machinery otherwise exists for settling trade disputes by conciliation or arbitration covering a substantial proportion of those concerned, the Minister is not empowered to refer the matter for settlement or advice without the consent of both parties to the dispute and until existing machinery has failed to promote a settlement.

A single arbitrator or arbitrators appointed by the Minister may have the assistance of assessors. On the other hand, boards of arbitration may be established consisting of an equal number of members nominated by employers and workpeople respectively, under an independent chairman appointed by the Minister. Panels of suitable persons, including women, are maintained by the Minister. There is usually a board of three members constituted specifically to arbitrate in a particular trade dispute and arrangements are usually made for the parties to accept the Chairman acting, as in the case of an Industrial Court, with the power of an umpire.

It should be observed that neither the Conciliation Act nor the Industrial Courts Act compels an unwilling party to go to arbitration. Indeed arbitration awards do not legally bind the parties, but the question of enforcement hardly arises as the procedure results from a joint wish to settle the dispute. However, the awards when adopted form a term or condition of the contract of employment.

The Industrial Courts Act, 1919, also provides for Courts of Enquiry, which provide a means of informing the public of the facts and causes of a dispute in cases where the public interest so requires. In cases

where the public interest is not so wide, the Minister usually proceeds under the provisions of the Conciliation Act, 1896, by appointing a single independent person or a committee of investigation as already mentioned. The Committee does not, however, possess the powers of a Court of Enquiry to call for information. The Minister may, where any trade dispute exists or is apprehended, enquire into the causes and circumstances of the dispute and, if he thinks fit, refer any relevant matter to a Court of Enquiry appointed by him for the purpose. The power to appoint Courts of Enquiry is used sparingly, and only in cases where the public interest requires an independent and unbiased examination of the facts of the dispute. The Court, which consists of one person only or of a Chairman and such other persons as the Minister thinks fit to appoint, sits either in public or in private, at their discretion. The Minister makes rules regulating the procedure of the Court : as to procedural matters, such as summoning of witnesses, provision for a quorum and the appointment of committees, and to enable the Court to call for relevant documents and requires evidence on oath. The Court may recommend a basis of settlement, without, however, any legal obligation on either party to conform, although the public nature of the enquiry tends to provide a satisfactory basis on which to reach a settlement. The report of the Court, and any minority report, has to be laid before both Houses of Parliament.

The Industrial Disputes Order, 1951, has replaced for peace-time conditions the Conditions of Employment and National Arbitration Order, 1940, commonly known as Order 1305, which was introduced in wartime as an effective means of avoiding stoppages of work resulting from trade disputes. The new Order was introduced as an experimental measure requiring goodwill on all sides for its successful operation and on the understanding that its operation would be reviewed immediately on the request of either side of industry.

The object of the new Order is to fortify the authority of the existing machinery for settling the terms and conditions of employment, in providing for the constitution of an Industrial Disputes Tribunal, consisting of three appointed members, with one of these as Chairman, together with two other members, one representing employers and the other workpeople. The three appointed members are drawn from a panel set up by the Minister, whereas the representative members are drawn from separate panels constituted by the Minister after consultation with the British Employers' Confederation and the Trade Union Congress. There are other provisions regulating the constitution and proceedings of the Tribunal.

The definition of "dispute" for the purpose of the Order covers any dispute between an employer and his workers connected with their terms of employment or conditions of labour, but excludes disputes as to the employment or non-employment of any person, or whether anyone should or should not be a member of any trade union, or disputes between workpeople or, in accordance with a High Court ruling, disputes about the reinstatement of a worker in his employment.

The Order permits individual employers or organization of employers or trade unions to report disputes between employers and workpeople

concerning the terms and conditions of employment. Where machinery exists for the voluntary settlement of terms and conditions of employment, the dispute can be reported only by an organization of employers or an employer or trade union habitually participating in the use of that machinery. In the absence of existing machinery, the dispute may be reported by the relative employer or by an employer's organization or a trade union, representing a substantial proportion of employers or workers in the industry or section of industry concerned.

The Order deals with "issues" as well as "disputes". Accordingly, where recognized terms and conditions are established in any district in any trade or industry, or section of trade or industry, an issue as to whether an employer in that district should observe these terms and conditions may be reported to the Minister by an organization of employers or a trade union which habitually participates in the settlement of terms or conditions of employment in the trade or industry or section of trade or industry concerned.

Reports of a dispute or issue must be made to the Minister in writing and contain sufficient particulars. Any question as to whether a report of a dispute or issue has been made to the Minister in accordance with the Order and as to the time at which it was made has to be decided by the Minister, who may record his decision by a certificate, which is conclusive for all purposes.

The Minister may take any steps which seem to him expedient to promote a settlement of the dispute or issue in question, except that where he is of opinion that there is suitable machinery of negotiation or arbitration for the settlement of that dispute regarding which all practicable means of reaching a settlement have not been exhausted, he must refer the dispute for settlement to the machinery. Failing settlement, he is under an obligation to refer the question to the Industrial Disputes Tribunal within fourteen days of the dispute being reported, unless he feels it desirable to extend the period in order to give more time for direct conciliation or negotiation. He may delay reference to the tribunal when he considers that coercive action is being taken by, say, strike or lock-out, at the instance of either party to the dispute, or, if the question has already been referred, he may notify the Tribunal accordingly and thus postpone the proceedings before the Tribunal until he cancels the notification.

Any agreement, decision, or award, made through voluntary machinery, or any award made under the Conciliation Act, 1896, or the Industrial Courts Act, 1919, is regarded for the purpose of the Order as finally settling the dispute, thus avoiding the chance arising of settlement being challenged under the Order, or the Minister referring it to the Industrial Disputes Tribunal.

If the Tribunal finds there are appropriate recognized terms and conditions which are not being observed by the employer, or terms and conditions at least as favourable, the Tribunal may in its award require the employer to observe the recognized terms and conditions that it may decide to be not less favourable. The Tribunal's award, whether settling a dispute or an issue, forms an implied term of the contract between the employers and workers affected and is legally enforceable at law.

CHAPTER 7

JOB EVALUATION AND MERIT RATING

THE chaotic state of the industrial wage structure in this country provides ample testimony to the urgent need which exists for a realistic approach to the complex problem of establishing a sound system of industrial remuneration on the common-sense basis of job evaluation, supported by adequate rewards for personal achievement. Ample scope exists within the framework of existing negotiating machinery for the development in this direction of satisfactory industrial relations as an essential basis of national prosperity. More progress is required in applying these techniques to assess the demands of each job and relate each job to every other job, to assess the personal worth of each occupant and adopt rates of remuneration which recognize these occupational and individual differences. The process of making an initial assessment of the job and periodical appraisals of individual merit ensures an equitable system of remuneration which realistically reflects the application of skill, knowledge and energy on the part of each worker, as evidenced by the state of his pay packet. It will be much more economical in the long run to face this problem of establishing an equitable basis of industrial remuneration than to be forever spending time in attempting to solve recurrent problems associated with wage and salary levels. Indeed, the application of systematic procedures of job evaluation and merit rating is itself advantageous, because it enforces thought on the subject and nobody, however practical he may be, can hope to make objective assessments without making a formal approach to the problem.

Job evaluation, or the systematic process of determining objectively, without regard to personalities, the relative basic values of various jobs in an organization, covers four salient steps. These are : firstly, to prepare job descriptions to entitle each job and record its characteristics in a form suitable to the method of evaluation ; secondly, to establish a job specification, or analysis of requirements, by making an objective and complete examination of each job through the personal observation of assessors ; thirdly, to compare and relate jobs with one another by grading, simple ranking, factor comparison or points assessment ; and finally, to evaluate jobs by reference to a monetary scale in order to determine their basic worth. It is important to realize that the standard of performance is irrelevant in making job evaluations, but, once the job itself is evaluated, merit rating may be introduced to enquire as to performance and determine the extent to which the performer measures up to his job. A successful scheme of job evaluation neither perpetuates existing wage anomalies nor creates new ones ; but the existence of established and accepted wage rates is relevant in expressing job demands in terms of basic wages.

Nevertheless the appearance of a detached scientific approach should not be allowed to obscure the limitations of job evaluation methods, or to result in their dogmatic application, for the absence of any absolute standards of measurement invalidates any real claim to scientific method. However, the sensible application of systematic procedures for assessing salaries and wages cannot fail to be more satisfactory to employers and employees than pursuing an arbitrary and merely intuitive approach ; but it is erroneous to think a wage policy will be successful in getting co-operation if the details of its structure are wrapped in mystery and withheld from those affected. Accordingly, adequate publicity is needed to stimulate enthusiasm and support for the plan, and the sincere co-operation of all concerned should be sought and encouraged in every way possible.

Job Description

The practical process of obtaining the information necessary to entitle and define each job depends on the particular circumstances of the firm concerned ; but, whatever arrangements are made, it is important that departmental supervisors and workers' representatives take part in the process in order that their confidence in the scheme may be secured and the results accepted by all concerned. As the process of evaluation is essentially that of assessing differences between jobs, job descriptions are required in order to establish the facts and to give assessors detailed knowledge of what is involved. In the interests of clarity, each job should be given a concise title indicative of the whole occupation, and such elements should be listed as working background, physical conditions, specific duties, responsibilities and personal relations. It is essential for job descriptions to be clear, concise and complete in identifying jobs and defining their distinguishing features without excessive detail which gives rise to controversy as slight alterations are made to meet the needs of gradually changing circumstances. At the same time, the degree of accuracy in job descriptions must be such as to ensure that additional duties cannot be indiscriminately imposed.

The succeeding task of analysing job descriptions, in order to assess the minimum demands or requirements of jobs, is normally entrusted to a panel of assessors, on which it is preferable that workers' representatives should be placed. Personal observation of each job by the panel is important and workers should be allowed to demonstrate any particular features of their jobs which they may wish to emphasize in order that assessors may gain a clear conception of each task. It is, of course, important to avoid excessive valuations as the result of group pressure, or incorrect classification as the result of supervisors being unduly influenced by particular employees. The success of a job evaluation scheme depends primarily upon the capacity of the assessors, who need to be carefully chosen and instructed. Two or three assessments may be made at intervals in order to minimize error and eliminate any significant differences, so that unbiased data will be available for calculating the final average. In the course of this enquiry, many instances are likely to arise where the way in which

the job is being done is unsatisfactory, as a result of which economies may more than compensate for the cost of the survey.

Job Grading and Ranking

When job descriptions and specifications have been prepared, the difficult process follows of comparing and relating jobs with one another. Any method adopted is of an empirical nature, as no absolute values exist for the measurement of job contents. The general problem may be simplified by, firstly, grading or classifying jobs, so that grades are established for various functional levels into which jobs are appropriately placed by matching job definitions with grade descriptions. For example, grades may be established, as indicated in Table 5, for administrative, executive, specialist, interpretative and manipulative jobs and the manipulative grade may be sub-divided into sub-grades covering highly skilled, skilled, semi-skilled and unskilled jobs. It is, however, unusual to include the higher administrative jobs within the detailed scope of a job evaluation survey, as in these cases the personalities of the occupants may be a determining factor which far outweighs any other, so that considerations applicable to the generality of cases are inapplicable to this minority.

Jobs in the executive, specialist and interpretative grades may be ranked according to their relative importance on the lines of a "family tree" and sub-grades may be established in this way for each level of authority. The disadvantage of ranking and grading arises from the absence of a quantitative basis of assessment giving definite criteria or standards of measurement. Accordingly, there is no assurance that assessors will place equal emphasis on similar job conditions or requirements, because there is no definite means of weighting various job requirements. There is also no assurance that intervals between ranks or grades are comparable, as jobs are arranged merely in an arithmetical series. On the other hand, these methods are simple to understand and easy to apply when the number of jobs concerned is small. They are certainly useful as a means of simplifying the general problem and are in no way incompatible with the later application of more advanced and less empirical methods, based upon factor comparisons or points assessments. These are analytical systems dealing with job elements or factors which are separately defined and evaluated, whence the results for each factor are aggregated in order to give the final evaluation for the job. They differ in their method of analysis, in so far as the factor comparison method relates each job directly to other jobs with respect to each factor, whereas the points method relates each job to a descriptive scale of points value. The points plan provides a more objective basis of assessment than the factor comparison method, which is definitely coloured by existing rates of remuneration paid for selected key jobs. Whilst both methods provide a systematic approach to the problems of evaluation, they have no claims to perfection, as they do not provide any absolute basis of measurement. On the other hand, they do provide a practical approach by limiting the prospect of error and in giving more satisfactory results

TABLE 5.—GENERAL

<i>Grade</i>	<i>Classification</i>	<i>Responsible to</i>	<i>Responsible for</i>
1	<i>Administrative</i>	Managing Director or General Manager.	A complete function or major division of management and/or the work and co-ordination of various executives or specialists.
2	<i>Executive or Specialist</i>	Member of Administrative Grade.	Translating policy into practice, also for departmental output within functional or operative field of activity.
3	<i>Interpretative</i>	Member of Executive or Specialist Grade.	Work of sectional activities in functional or operative field ; specialist in own field, able to deal with authority on own subject, to devise own methods and techniques or co-ordinate functional activities.
4A	<i>Manipulative</i> Highly skilled.	Member of Interpretative Grade.	Control of small group or co-ordination of several groups or individual work of a highly skilled nature with some control over its sequence.
4B	Skilled.	Member of Interpretative or Highly Skilled Grade.	Specialized worker or control of small group as working member, requiring some initiative with varying daily routine.
4C	Semi-skilled.	Member of Interpretative, Highly Skilled or Skilled Grade.	Fairly simple operations with some diversification requiring limited knowledge and application of well-defined rules.
4D	Unskilled.	Member of Interpretative, Highly Skilled or Skilled Grade.	Work of a simple routine or repetitive nature.

JOB CLASSIFICATION

<i>Supervision Rec'd</i>	<i>Requirements</i>	<i>Examples</i>
In general policy and broad issues only.	Managerial and organizing ability, business sense and understanding of industrial economics with, in some cases, fairly specialized knowledge.	Secretary, Chief Engineer, Business Manager, Works Manager, Divisional Manager.
Close on general policy, but only in principle on operative or technical matters.	Departmental organizing and managerial ability with sound business sense and specialized knowledge or creative ability of high order in initiating projects and devising techniques for their solution.	Cost Accountant, Works Engineer, Production Manager, Local Sales Manager, Methods Engineer.
Close on policy, and plan, but not on administrative detail.	High technical and/or supervisory ability, able to classify work and apply agreed procedures.	Foreman, Production Engineer, Senior Draughtsman, Head Storekeeper, Tech. Representative, Time Study Engineer.
Close on policy, plan and administrative detail, with scope for initiative and discretion in technical operations.	Ability to handle others and/or technical expertness backed by adequate training and experience.	Section Leader, Toolmaker, Draughtsman.
Close in nearly all respects to precise instruction.	Training of hand or mind in some fairly specialized activity to acquire necessary technical knowledge and skill.	Machine Toolsetter, Working Chargehand, Progress Clerk, Storekeeper, Chaser.
Close in all respects to precise instructions.	Restricted training. Ability to carry out instructions skilfully in a very restricted field.	Machine Tool Operator, Multi-assembly Worker, Stores Assistant, Truck Driver.
Close in all respects to precise instructions.	Relatively little training or experience. Proficiency arises from repetitive practices and ability to follow instructions.	Machine Minder, Assembler, Packer, Labourer, Messenger.

than could possibly arise in the absence of a systematic approach to the problem.

Factor Comparison

The first step in using the factor comparison method is to determine and define a limited number of essential job elements or factors, which, taken together, may be used to express the minimum demands of any job which is to be evaluated. The use of too many factors makes the scheme unwieldy ; but a sufficient number of factors should be used in order to avoid making blanket comparisons.

About five factors are used in practice, covering respectively mental, physical, responsibility, skill and working demands. When the preparation of job descriptions and factor definitions is completed, a number of key jobs are placed in order of their relative importance under each factor, so that each job has a ranking number for each factor. Of course, when two or more jobs are placed equally they carry the same rank and number, and succeeding places are omitted so as to maintain equality in the number of ranks and jobs. The selection of key jobs for this purpose is not always easy, for jobs can only be included in the key list which are properly rewarded, and there is need to decide which these are, in order to provide a fair sample of the whole range of jobs. The method assumes, therefore, that key jobs are properly remunerated individually and relatively.

The next step is the difficult one of distributing the current rate of pay for each key job over the five factors ; for example, if a job is being remunerated at the basic rate of £300 per annum, there is need to calculate how much of this amount is being paid for the responsibility involved, physical effort demanded, and so on, with consideration given to the previously ranked order. This procedure, in effect, weights the various factors in their application to each job on a monetary basis. Theoretically the absence of quantitative criteria makes it difficult to effect these distributions ; but as key jobs were selected on a basis of their bearing accepted rates, little disproportion should in practice arise between evaluated and actual rates. Inconsistent jobs must be eliminated from the key scale, if the ranking and rate distribution to factors cannot be reconciled after discussion. The process of rate distribution is not always easy to explain to employees, for clearly the distribution of the rate among the factors of the job first considered tends to determine the distribution of the rates of the others, whilst any change in the amount allocated to one factor necessarily changes the amounts distributed to the others. Care is needed to avoid being influenced by current rates of pay, thereby continuing existing inequalities of the rate structure. Considerable difficulties may well arise before a separate monetary scale is prepared for each factor, in which are listed the jobs in their ranked order for each factor, with the sum of money paid for each rank. For this reason, the system of points assessment is generally preferred in this country.

Supplemental key jobs are then added within gaps in each key scale to provide additional points of comparison. Gradually, all other jobs are ranked for comparison with key jobs and so fitted into the

scales, factor by factor. In this process, rates currently paid are ignored. Greater care is obviously needed in placing the relative factor of the job being evaluated, where there is a wide gap between the monetary values of two successive key rankings. Finally, the relative worth of all jobs is obtained by adding the monetary values of each factor of each job, as derived from factor scales.

Points Comparison

A points scale may be adopted in place of a monetary one in order to overcome the limitations of dealing with monetary values in the factor comparison method of job evaluation and to provide a system which partakes of the advantages of a factor comparison and a points system.

The points plan ignores the rates of pay currently payable for key jobs by assessing job contents on a points basis, from which evaluation can be made in accordance with the economic value of the work content or as the result of collective bargaining. The procedure usually adopted is to define the factors to be used, to determine and define the number of degrees of each factor, to fix weightings for each factor and to assign points to each degree of each factor, to assess the points assessments of various key jobs and, finally, to interpolate all other jobs in the scales.

The number of factors used should suffice to cover all important phases of the jobs to be evaluated ; but care should be taken to avoid over-emphasizing certain features through using overlapping factors. As a guide, factors may be defined on the basis of the following list, from which factors A, B, E, F, and G may be used in assessing jobs in executive, creative and interpretative grades, whilst factors C, D, E, F, G, and H may be more appropriate to the evaluation of jobs in the manipulative grades, with such further sub-divisions of factors as may appear desirable :

<i>Factor</i>	<i>Comprising</i>
Mental Demands.	A. Executive ability ; organizing powers ; business sense, leadership, initiative, self-confidence, analytical ability ; capacity for disparate attention ; facility of expression ; persuasiveness, versatility. B. Creative ability ; imagination ; visualization, reasoning powers ; alertness of mind ; perseverance, ingenuity. C. Temperament ; equanimity ; courage ; reliability ; co-operativeness ; memory ; concentration ; attention to detail ; mechanical sense.
Physical Demands.	D. Muscular strength ; stamina ; agility ; manual dexterity ; sensory accuracy.
Knowledge and Skill.	E. General knowledge ; technical or specialized knowledge ; training ; experience.
Responsibility.	F. Responsibility for supervision of others, with due regard to the extent and intensity of supervision given and received ; responsibility for co-ordination of activities ; responsibility for instruction of employees.

<i>Factor</i>	<i>Comprising</i>
Working Conditions.	G. Responsibility for negotiations, organization, methods or processes ; responsibility for custody of cash, materials, records and equipment, confidential data ; responsibility for use of labour, materials, plant and other resources.
	H. Mental disagreeableness ; monotony ; isolation ; noise, nervous strain ; physical disagreeableness ; atmosphere ; temperature ; vibration ; congestion ; exposure ; cramped working position ; need to wear protective clothing ; visual strain ; hazards and risks of accident and disease ; working hours ; daywork ; nightwork ; shift work ; week-end work ; overtime and holiday working ; absence from home.

As many as fifteen or more factors are used in some points systems, with between four and eight degrees to each factor, whilst the points allocated to each degree of each factor often cover a fairly wide range. Such an arrangement pre-supposes a degree of precision in the points assessment of jobs which is unrealistic, and may well result in a separate points assessment for each job reflecting insignificant differences of job content. If these assessments were converted by a monetary scale to a single rate for each job, an unwieldy rate structure would result which would be difficult to justify to employees and cause unnecessary administrative work.

Each degree should be clearly defined and sufficient to cover all anticipated eventualities. An even number of degrees has the advantage of avoiding a "central tendency" on the part of assessors to select the median of the range of values. The allocation of points to each degree is easily arranged on the basis of a simple arithmetical series.

Factors are next weighted in order to express the relative importance of each job element ; for example, in the manipulative grades, the factor of working conditions may be more relative than mental demands. The points scale for each degree of each factor may be conveniently weighted in a combined scale as in Table 6, which may be considered adequate for evaluating jobs in the manipulative grades. Detailed definitions need to be established for each degree of each

TABLE 6

<i>Weighted Points : Manipulative Grades</i>				
	A	B	C	D
Mental demands . . .	3	6	9	12
Physical demands . . .	3	6	9	12
Knowledge and skill . . .	8	16	24	32
Responsibility . . .	5	10	15	20
Working demands . . .	6	12	18	24
Totals	25	50	75	100

factor from information derived from job descriptions. For example, the lowest degree A would relate to employments suitable for unskilled, untrained and inexperienced persons, making no special physical, mental or other demands, closely supervised and entirely non-supervisory, and providing reasonable working conditions free from any special risks or hazards.

As with the factor comparison method, a number of key jobs are first assessed and other jobs are thereafter interpolated so that consistency is maintained. In this case, of course, the assessments are made on a points basis. It is preferable that jobs adopted as key jobs should be well known and provide a good sample of the whole range of jobs. If the assessors disagree as to which degree of a factor applies to a job, the problem should be thoroughly discussed and, if agreement is not reached, the results should be averaged, or, if the majority agree, the higher degree should be accepted. Extra care should be taken to minimize discrepancies, for although two jobs may be clearly dissimilar, there is the risk that owing to the interaction of points, the total points assessment in each case may be the same. The points assessment for each factor may be checked by reference to an independent ranking, a procedure which may also with advantage be followed for the total points assessment for each job. Of course, once a job has been evaluated, any change in its basic requirements gives rise to a revaluation. In any event, the periodical review of all jobs ensures that all significant and gradual changes are taken into consideration.

The relative values of a series of jobs are reflected by their points assessments, which need to be translated into monetary values by reference to a scale of values. The general objective should be to assign a fair monetary value to jobs which reflect their intrinsic differences and current market values, so that all employees who are in a similar situation are rewarded alike. In theory, a sound method of points assessment should automatically determine the differential value of each job, so that no discrimination should be needed in fixing basic rates of pay, whether the job is of a manual or clerical nature or by reason of the age or sex of the occupant, although, naturally, any merit payments or bonus earnings should reflect any differential accomplishment in performance. In practice, of course, many factors need to be considered in fixing the relationship between points assessments and rates of pay, such as agreements between employers and trade unions, statutory requirements, the level of domestic earnings and the level of comparative earnings in neighbouring firms and in the same industry. Any anomalies which may arise in the application of the results of job assessments need to be treated on their merits. For example, where, as occasionally happens, an employee works on more than one job, he may be paid on the basis of the higher evaluated job on which he is regularly and mainly employed.

As the efficiency of any job evaluation plan is no greater than that of the judgments on which it is based, the number of basic rates of pay in any main class of employment should be strictly limited. The adoption of a rate-range for each job, with, possibly, overlapping rates, is similarly unwarranted. A preferable method is to establish

labour grades by grouping the points assessments into either a simple rate or a range of rates, for all jobs in each grade. The simple rate makes for administrative simplicity, and is particularly desirable where merit is rewarded through piecework systems of payment, or where merit awards or bonus payments are assessed. Accordingly, there is no virtue in having more detailed assessments than are necessary to establish the limited number of basic rates required to reflect significant basic differences in work content in each main class of employment. The total points value of a job does not, of course, bear any permanent relation to a monetary scale, because the scale will need to be altered as conditions change.

Basic Remuneration

A labour market survey is desirable as a basis of decision in fixing monetary values to jobs, if recurrent adjustments of rates of remuneration are to be minimized. The information obtained from the survey should relate not only to local conditions, but also to conditions within the same industry, wherever located, and should cover basic rates, hours and earnings, bonus earnings or merit awards, overtime earnings, "fringe benefits" by way of holiday pay, sickness benefits, insurance and pension benefits, canteen facilities, and the like. Careful planning is required in order that proper comparisons may be made of job contents and not superficial comparisons of job titles. The job included in the survey should be fairly distributed throughout the firms covered by the survey and should cover the jobs held by the maximum number of employees of the firm making the survey. The jobs should be fully established and there should preferably be neither an exceptional shortage nor surplus of workers for them. Every job need not be surveyed, but the object should be to obtain as large a comparable sample as is possible under the circumstances. Care is needed in comparing data obtained locally with those for the same industry obtained from other areas.

In order to facilitate the comparison of domestic, local and industrial base rates, survey data may be summarized by comparing the median rate of basic pay for each labour grade rather than the average, as the average often gives undue weight to extreme values. The median rate is, of course, ascertained by listing the rates in order of their value and extracting the rate attached to the middle item of the series, *i.e.*, the $\frac{N+1}{2}$ item from the end, where N is the total number of items in the series. The median rates for each labour grade may then be plotted on graph paper and the best fitting curve determined either empirically or by the method of least squares. The best fitting curve for each set of base rates, domestic, local and industrial, may then be replotted on the same sheet of graph paper for comparative purposes. The actual basic rates currently paid to each employee concerned may also be plotted on the same sheet in order to picture their dispersion about the best fitting curve.

The determination of the scale of monetary values by which points assessments are translated into monetary values is clearly a matter

of high policy. In the administration of declared policy, it is important to guarantee that no reduction in individual overall rates of pay will be made as the result of the introduction of the scheme, although adjustments may be made between base rates, merit awards or other components of the overall rate. Clearly, too, from a practical point of view, any anomalies disclosed as the result of job evaluation can be eliminated only by granting appropriate increases of pay or by lapse of time. General policy in determining levels of remuneration is, of course, conditioned by statutory requirements, collective bargaining agreements, general economic conditions, existing and comparable rates of pay and the domestic circumstances of the firm concerned. For example, labour of the highest quality may be required for a firm operating a highly mechanized flow production plant to which end a "leader scale" of pay may be adopted, say, 20 per cent higher than relative local rates. In other cases, there may be a surplus of man-power available locally and all labour requirements may be fulfilled by adopting a "tail end" scale offering a lower reward than other firms, particularly so if available labour is of doubtful quality. Cheap labour is, however, expensive when productivity is subnormal, and may tend to increase labour turnover and training expenses. Even in a highly competitive industry, "tail end" rates of pay do not necessarily reduce costs. On the other hand, the attraction of "leader rates" of pay does not necessarily guarantee that the services of the best workers in the district will be secured and often carries long-term implications from which it may be difficult to withdraw.

The scheme of remuneration adopted should be designed to benefit both employer and employees. As a matter of principle, people should do a fair day's work for a fair day's pay before they receive the benefit of incentives. Moreover, meritorious work should be rewarded just as failure to maintain a satisfactory rate of productivity should be criticized, for acknowledgment of special effort encourages still higher attainments of efficiency and service. Domestic costs are relevant; for example, where labour costs are a relatively small part of total costs, a relatively larger bonus may be offered for marginal output. Increased output per man-year, resulting in reduced costs per unit of output, and higher wages per man-hour, with the maintenance of satisfactory quality, should be the constant objective both of employee and employer. The question, therefore, posed is, "How much can a firm afford to offer its employees, in addition to basic wages or salaries, with this objective in view."

As industry aims at converting raw materials into saleable products at as low a cost as possible through the agency of corporate endeavour, the problem may be approached in general terms by considering labour and overhead costs per unit of output and the possible effect of various improvements being made in output at the cost of extra payments.

$$\text{Existing unit conversion costs} = \frac{\text{wages} + \text{overheads}}{\text{production}}, \text{ say } \frac{W + H}{P}$$

As a safeguard against financial loss, it is essential that the unit conversion cost with incentives should not exceed that without incentives.

Therefore, if wages increase by x per cent and production improves by y per cent the wage bill becomes $W + xW = W(1 + x)$ and production increases to $P + yP = P(1 + y)$.

$$\text{Hence } \frac{W(1 + x) + H}{P(1 + y)} = \frac{W + H}{P}$$

$$\text{Whence } x = y(1 + R), \text{ where } R = \frac{H}{W}$$

Thus, the limits of financial prudence in the determination of incentives are determined by the ratio of existing overhead expenses to current wages and the percentage increase which will be secured in production. For example, where the ratio of overhead expenses to wages is three and it is considered that suitable incentives will increase production by 20 per cent, then the theoretical limit of incentives is 80 per cent of existing wages. Table 7 indicates the relationship on a percentage basis between maximum theoretical incentives and improved outputs with different ratios of overhead expenses to wages.

The assumption made in this discussion is that the cost of administering the incentive scheme is included in the incentive cost ; but when increased output is obtained from existing man-power and capacity, some increase in semi-variable expenses will arise. These costs need to be deducted from the maximum theoretical incentive payments. Wages have also been referred to as being payments made to directly

TABLE 7

Ratio of Overheads to Wages $\frac{H}{W}$	$y = \text{Percentage Increase of Production}$				
	10%	20%	30%	40%	50%
	$x = \text{Percentage Incentive (Theoretical Maximum)}$				
1.0	20	40	60	80	100
1.2	22	44	66	88	110
1.4	24	48	72	96	120
1.6	26	52	78	104	130
1.8	28	56	84	112	140
2.0	30	60	90	120	150
2.2	32	64	96	128	160
2.4	34	68	102	136	170
2.6	36	72	108	144	180
2.8	38	76	114	152	190
3.0	40	80	120	160	200
3.2	42	84	126	168	210
3.4	44	88	132	176	220
3.6	46	92	138	184	230
3.8	48	96	144	192	240
4.0	50	100	150	200	250

productive workers only, but the term may be made as general as required by including the wages of indirect wage-earners and salaried employees, provided corresponding reductions are made in the figures of overhead expenses used for this purpose.

The formula may be revised as in Table 8 in view of possible economies being made in overhead expenses as a result of work-study reducing these by z per cent of their existing value. In this case

$$\text{Existing conversion cost per unit} = \frac{W + H}{P}$$

$$\text{Proposed conversion cost per unit} = \frac{W(1+x) + H(1-z)}{P(1+y)}$$

Hence, on the assumption of equality,

$$\frac{W + H}{P} = \frac{W(1+x) + H(1-z)}{P(1+y)}$$

$$\text{whence, } x = y + R(y+z)$$

TABLE 8

Rate of Overheads to Wages $\frac{H}{W}$	$y = \text{Percentage Increase in Production}$								
	10%			20%			30%		
	$z = \text{Percent Overhead Saving}$			$z = \text{Percent Overhead Saving}$			$z = \text{Percent Overhead Saving}$		
	10%	20%	30%	10%	20%	30%	10%	20%	30%
	$x = \text{Percentage Incentive (Theoretical Maximum)}$								
1.0	30	40	50	50	60	70	70	80	90
1.2	34	46	58	56	68	80	78	90	102
1.4	38	52	66	62	76	90	86	100	114
1.6	42	58	74	68	84	100	94	110	126
1.8	46	64	82	74	92	110	102	120	138
2.0	50	70	90	80	100	120	110	130	150
2.2	54	76	98	86	108	130	118	140	162
2.4	58	82	106	92	116	140	126	150	174
2.6	62	88	114	98	124	150	134	160	186
2.8	66	94	122	104	132	160	142	170	198
3.0	70	100	130	110	140	170	150	180	210
3.2	74	106	138	116	148	180	158	190	222
3.4	78	112	146	122	156	190	166	200	234
3.6	82	118	154	128	164	200	174	210	246
3.8	86	124	162	134	172	210	182	220	258
4.0	90	130	170	140	180	220	190	230	270

The figures shown in Tables 7 and 8 indicate that considerable scope exists for offering worthwhile inducements to greater effort, especially where the ratio of overhead cost to direct wages is relatively high. Not only may the application of incentives secure appreciable reductions in unit costs, but additional output may bring greater profit as

well. It is, however, unfortunate that the major portion of profits derived from the application of incentives is taken by the Inland Revenue authorities, whilst additional incentive earnings of employees are subjected to P.A.Y.E. deductions.

In many cases, employees seek incentive rewards irrespective of company profits ; but rewards can be maintained only if and so long as effective output is achieved at favourable selling prices. Many other factors require consideration. Increased output may require reduced selling prices, or increased selling expenses, in order to stimulate the necessary demand. Increased financial charges may arise from the need to modernize or extend plant. In some cases, however, nothing more than direct managerial action may be needed in order to reduce overheads, but in other cases where overheads are a minimum for the current volume of output, overhead costs per unit of output may be reduced only from the application of greater effort on the part of directly productive workers and their associates. On the other hand, incentives to greater output are not always appropriate, as, for example, where consideration for the safety of workers engaged in particular processes is paramount.

Indirect or fringe incentives may be offered in a variety of ways, through financial and other benefits being given to distressed or sick employees, in catering for the welfare of employees on their retirement by means of pension funds, in securing life assurance cover to protect the dependents of deceased employees, and in looking after the welfare of active employees by the provision of canteens and recreational and other welfare facilities. These are in general very desirable forms of incentive to which a money value can be attached. The need to provide recreational and social facilities is, however, a matter upon which opinion is divided, although it is obviously desirable to make provision to this end in the case of isolated communities. In any case, there is much to be said in favour of leaving their provision to outside enterprise rather than permitting any interference with official duties. For the internal organization of such activities can be relatively expensive, time-consuming and distracting through time being spent in unofficial conferences and interference with the free use of internal telephone lines for official communications, although it is often the case that the proportion of all employees who take advantage of their provision is small.

It is usual, and indeed desirable, that all fringe incentives should be administered with the active co-operation of employees representative of all ranks, with company officials in key positions, either honorary or otherwise. This arrangement may help to avoid the tendency which so often arises for facilities of this kind to be taken for granted, in spite of the large contribution often made by companies for these purposes. It is important also to ensure that the costs of providing "fringe" benefits does not exceed their budgeted amount, as any excess inevitably increases overhead costs.

When the limits of expenditure on fringe incentives have been settled, the balance available for use as direct incentive rewards may be determined. Often, only directly productive workers participate in

direct incentive rewards, although, in many cases, indirectly productive workers are included, whilst, in some cases, salaried employees receive some form of incentive reward, either by way of merit awards or bonus payments. It is not usual to find all grades of employees participating in incentive schemes, although there are striking examples of the beneficial results of comprehensive schemes of incentive payments. The test to make in each case is: "Will the incentive which it is proposed to offer bring about increased output at reduced cost per unit of output?" However, in order to maintain a contented body of employees and thereby to minimize labour turnover, there is much to be said for automatically relating rates of remuneration to a reliable cost of living index, and for providing increasing rates of pay according to length of service, with special bonus awards in time of high prosperity.

Merit Rating

Merit awards provide the most general form of incentive payments and are especially applicable in respect of employees to whom, by reason of the nature of their work, direct incentives cannot be offered. Merit rating provides a means of measuring or assessing the extent to which each employee fits into his job and provides a basis for making merit awards which encourage capable employees to remain with the firm. In the naturally difficult process of objectively assessing each employee's value to the company, various methods are available, such as ranking, personal comparisons, check lists and points systems.

Ranking.—Ranking places employees in order of merit by comparing, in effect, each person with every other; but it is difficult to justify the result if queries arise because no precise standard of comparison exists. This difficulty increases with the number of employees to be ranked; but to simplify the process a preliminary grading may be made as instanced below, although this presents similar difficulties in a less degree. Whereas it is relatively easy to determine who shall be assessed at the extreme end of the scale, it is increasingly difficult to rank those who possess greater similarity. A separate ranking of each important trait has the advantage of minimizing the risk of ranking a person on the basis of an overall impression. It is preferable to rank each trait in turn throughout, and to determine final rankings by averaging the ranks obtained for each employee in respect of each trait, with due regard to its relative importance. An alternative procedure to the simple ranking of all employees is to rank them within designated grades or classifications. For example, those in each of the administrative, specialist, executive, interpretative and manipulative classes may be ranked in their order of merit within the class concerned, or within a grade of their class, either on an overall basis or separately for specified desirable traits.

Personal Comparisons.—As an alternative to ranking, rating may be based on personal or man-to-man comparisons, whereby the appropriate assessor selects an employee who exemplifies each trait at each level of authority concerned, in order that others may be matched against him and assigned a numerically higher or lower degree. The

composite score for each employee may then be found by adding the numerical values obtained for each trait by each employee. This method is, however, not generally satisfactory for use in industry, because it is lacking in precision and is too limited in its application. It is, however, a method which may be applied in considering the rewards of higher appointments.

Check Lists.—Merit rating by means of check lists requires that lists of questions have to be answered in respect of each person in order to determine the degree to which each relevant trait is applicable to him. It is simpler than evaluating each trait or characteristic, as the method merely involves the answering of straightforward questions, which, being related to the job elements, tend to promote constructive discussion between the supervisor and the person rated. The method gives a reasonable comparison of employees in different departments, because the supervisor's task is merely one of reporting the applicability of specified items of work behaviour rather than of evaluation performance in numerical terms. On the other hand, considerable patience and skill in the way of psychological and statistical expertness is needed to design the question list and difficulties of explanation would arise in justifying its statistical basis if questions were raised by those concerned.

Points System.—A more popular method of merit rating in this country is the points system, which consists essentially of defining a list of desirable traits or characteristics and indicating against each the degree to which it is disclosed by the employee in his work and from the final points assessment, duly weighted according to the relative importance of each trait, evaluating the merit award.

The number of desirable traits included in the scale should be sufficient to avoid blanket comparisons being made and to ensure that the results obtained provide a comprehensive measure of merit. At the same time, there is need to avoid the use of overlapping traits which distort results. Of course, the traits which apply in one case do not necessarily apply to the same extent or even at all in other cases, although there are certain traits of wide application. Whilst the traits which should be included for assessment are those which are important for the successful performance of the job under consideration, it is desirable not only to evaluate the worth of each person in his present job, but also to appraise his latent abilities and possible future use to the firm in more responsible duties. The significance of each trait for each functional level requires determination.

The degree of each trait or attribute is assessed on a points basis by reference either to continuous or discrete scales, which, of course, need to be translated into monetary values in accordance with policy. Descriptive step-scales of the type illustrated in Table 9 provide an acceptable rating device, being readily understood both by supervisors and employees. The use of discrete scales acknowledges that very close discrimination is impracticable, whilst a discrete scale consisting of an even number of degrees avoids what is known as "central tendency", or the inclination of assessors to use the middle of the scale and thereby to rate too many traits as average.

TABLE 9
MERIT RATING CHART

Name	Job Classification			
Age.....	Roll No.	Job Title		
Service with Company.....		Department		
Service, present job		Rated by		
Assessment		Confirmed by		
<i>Trait</i>	<i>Degree of Trait</i>			
	A	B	C	D
Quality of Work.	Fairly satisfactory.	Mainly satisfactory.	Consistently satisfactory.	First class.
Quantity of Work.	Low.	Generally reasonable.	Consistently good	Exceptional.
Job Knowledge.	Lacking in detail and scope.	Lacking in detail or scope.	Adequate.	More than adequate.
Dependability.	Generally unreliable.	Uncertain.	Generally reliable.	Absolutely reliable.
Co-operation.	Unco-operative.	Willing to co-operate.	Co-operates.	Actively seeks co-operation.
Adaptability.	Unadaptable.	Prefers present job.	Fairly adaptable.	Highly versatile.
<p>NOTE : Consider under dependability : honesty, application to job, sense of responsibility.</p> <p>Consider under co-operation : general co-operation, time keeping and attendance.</p>				

What is known as “ halo effect ” arises when the rating of traits is influenced by the rater’s overall impression of the person concerned. This effect may be minimized by taking each trait separately and rating that trait throughout the list of employees, instead of dealing comprehensively with each person by rating for all traits simultaneously. Tendency to leniency in rating by contemplation of the unfavourable implications of low ratings should be avoided.

In scoring the number of points awarded to each person rated, the number of points may be simply added together or related in terms of their standard deviation to a normal probability scale. This gives additional weighting to outstanding abilities, places full emphasis upon personal deficiencies and minimizes the risk of overall scores concealing significant trait differences. The aggregate points derived on either basis may be grouped according to a percentage scale, such as 0-9,

10-19, 20-29, etc., in acknowledgment of the empirical nature of the results, although this grouping raises the further problem of dealing with marginal values ; for example, the effect would be to increase the difference between an award of 59 points and one of 60 points. It is always well to remember in any case that the results of merit rating cannot be more precise than the judgments on which they are based.

A points scale and weightings appropriate to this chart may be expressed compositely as in Table 10 :

TABLE 10

<i>Trait</i>	<i>Degree of Trait</i>			
	A	B	C	D
Quality of work . . .	5	10	15	25
Quantity of work . . .	5	10	15	25
Job knowledge . . .	3	6	9	15
Dependability . . .	3	6	9	15
Co-operation . . .	2	4	6	10
Adaptability . . .	2	4	6	10
Totals . . .	20	40	60	100

As merit rating calls for an intimate knowledge of the persons rated, assessments are normally made by those who have this knowledge, so that in practice the task initially falls on the immediate supervisor concerned. There is need, therefore, to guard against both the over-generous and the weak supervisor, especially when dealing with aggressive employees. Weak reporting officers also tend to be ungenerous to ability. For this reason, merit ratings should always be confirmed by a higher authority and any lack of supervisory ability disclosed should be reflected in the rating of the supervisor concerned, with all that it may entail.

It is desirable that merit ratings should be disclosed to the persons assessed, in a private manner, preferably by discussion with the immediate supervisor, in order to encourage self-improvement. People dislike being reported upon in secret ; but often display a surprising degree of objective judgment when given the opportunity of open and frank discussion about their performance. There is also need to have regard to democratic principles by permitting a final right of appeal against assessments made to a small committee of seniors.

Whereas the control of individual merit adjustments is a function of the departmental manager, who should have as much freedom as possible in this respect, control of the total amount of adjustments is properly a function of the general manager. Review forms should be provided for the convenience of departmental managers giving headings for all the data required for re-assessment, for the importance of pursuing a uniform policy in regularly reviewing merit ratings can hardly be over-emphasized.

The absence of an absolute criterion of measurement makes it impossible to demonstrate with certainty that any method of merit rating is valid in actually measuring what it purports to assess ; but the absence of statistical validity does not prevent the design of rating systems which satisfy all practical considerations in providing a fair and reasonable method of making merit awards, providing that all reasonable care and attention is taken in the preparation and application of the scheme. The reliability of a rating scheme is measured by its consistency in giving, other things remaining equal, the same results upon successive application. Although we may confidently anticipate that the relative frequency of occurrence of individual or trait assessments which have been efficiently made will tend to the shape of a normal distribution curve when plotted on graph paper, provided the random population concerned is sufficiently large, there is no such certainty when the population is not random. In fact, efficient employee selection which avoids misfits, supervisory qualities which use people to their best advantage, and job specialization which uses only the best features of a person's latent abilities, alike tend to bias rating assessments on the higher side of their mean value. Nevertheless, it is instructive to form such curves by plotting the frequency of occurrence of each points value of individual or traits assessments, and to compare the spread of the curves with a normal curve and with similar curves prepared on previous occasions. Similar curves may be prepared according to job classification, departmental groupings or otherwise, in order to provide cross-sectional comparisons as well. Any significant discrepancies may be investigated. Of course, when periodical comparisons are made, one has to realize that in the meantime some change in population will normally have taken place, assessors may have changed and the outlook or practices of remaining assessors may have been modified to some extent. Moreover, improvements of personnel ratings may reflect the beneficial application of a realistic employment policy. Such periodical comparisons, called "test-retest" methods, may be assessed numerically by the process of statistical correlation, in which paired-ratings made by each assessor are tested for consistency and working reliability. If desired, the "split halves" approach may be adopted whereby correlation coefficients are determined by a comparison of one-half of the assessments with the other half on the basis of a random selection. In any event, it is always desirable to ascertain and compare averages of individual and trait assessments by assessor, department and job grade. On the occasion of each periodical re-assessment, individual comparisons should be made by reference to a detailed record of assessments maintained for each employee.

PART II

**MANAGEMENT AND STATUTORY
ACCOUNTING**

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(Note: References made to “the Act” relate to the Companies Act, 1948, unless the context implies otherwise.)

CHAPTER 8

FINANCIAL ACCOUNTING PRINCIPLES

THE value of any financial statements prepared for the use of management depends upon the accuracy and completeness of the original documents and the preparation of the statements on sound accounting principles. Appreciation of these accounting principles requires an understanding of double-entry accounting and of the distinction between the terms capital and revenue as applied to expenditure and income.

Principles of Double-Entry

In order that accounts may truly reflect in financial terms the various activities and multitudinous transactions of a business, the accounting system must have regard to the twofold aspect of each transaction—for what one gives another receives. The rule of double-entry that every debit has its credit simply means that for every item entered on the left-hand side of an account, there must be a corresponding entry on the right-hand side of another account. The convention is that the “receiving account” is debited and the “giving account” is credited in respect of each transaction.

The term “debit balance” is used when there is an excess of debits over credits in an account, whereas the term “credit balance” is used when the credits exceed the debits. For example, when stock is purchased the stock account is increased by a debit of the same amount as that by which the creditor’s account is increased by a credit entry; when a creditor is paid, the cash account is depleted by a credit of the same amount as that by which the creditor’s account is depleted by a debit entry, and when cash is received from a debtor, the cash account is increased by a debit entry and the debtor’s account is diminished by the credit entry of a like sum.

The accounts must always balance in total, as debits and credits are equal in value. The following simple example should make this clear :

<i>Debit Balances</i>	<i>Opening Balances</i>		<i>Effect of Transaction</i>			<i>Final Balance</i>
	£		(A) £	(B) £	(C) £	£
Cash . .	1,000		—	1,000	+	1,500
Stock . .	2,000	+	2,000			4,000
Debtors . .	3,000				—	1,500
	<u>6,000</u>	+	<u>2,000</u>	<u>1,000</u>		<u>7,000</u>
<i>Credit Balances</i>	£		£	£	£	£
Capital . .	4,000					4,000
Creditors . .	2,000	+	2,000	1,000		3,000
	<u>6,000</u>	+	<u>2,000</u>	<u>1,000</u>		<u>7,000</u>

(A) Stock Purchases £2,000
 (B) Creditors Paid £1,000
 (C) Debtors Pay £1,500

An incidental but important by-product of the double-entry principle is that its adoption results in the analysis and classification of data which would, if a single-entry system of accounting were used, require a mass of subsidiary classifications and analyses. Moreover, the analyses obtained through double-entry are automatically in agreement with the final accounts.

In addition to providing much of the detail required in a business, the accounts themselves provide the means of exercising an overall control over the finances and, therefore, over the commercial efficiency of the business. The double-entry system provides a means of effectively controlling the payment of creditors and the collection of debts ; it maintains a complete account of capital, plant, and all other financial matters ; it enables the total amounts due to creditors or from debtors to be ascertained from day to day without the need to list all the innumerable personal accounts, and the presence of debtors' or creditors' accounts assures that no individual account need be overlooked. In short, double-entry accounting enables management to see where the money is in the business, the sources of funds and their destination.

Capital and Revenue

The principles of double-entry accounting require a clear appreciation of the distinction between "capital" and "revenue". This distinction is important, for capital represents investment, whereas revenue connotes gain or loss on trading. Both capital and revenue items may be represented by receipts or expenditure.

In the simple case of a single owner or a partnership, the contributed capital represents the amount invested in the business by the owner or partners, and this amount is shown in the capital account of the business as a liability of the business to the owner or partners. In the case of companies, contributed capital is the total money value subscribed to the company by its shareholders, although it is not always represented by actual monetary amounts paid to the company as a result of capital being called up from shareholders. For sometimes shares are issued in exchange for value received other than in cash ; for example, when a person or partnership transfers assets to a company in exchange for shares.

In the case of companies, the term "capital" is used in various senses. Nominal or authorized capital is the par value of shares which a company is authorized to issue under powers contained in its Memorandum of Association. Issued or subscribed capital refers to the nominal or par value of shares actually issued, including shares issued to the signatories of the Memorandum. Whilst nominal capital refers to possibilities only, issued capital refers to the fact that the value stated will be available in the business.

Contributed capital has already been referred to as the capital paid, or credited as paid for consideration other than cash, on the par value of shares issued. Capital is usually contributed in three stages—by application for shares, by the allotment of shares, and by calling up cash for the payment of shares, either in one sum or by stated instalments. Thus unpaid calls on shares are not part of the contributed

capital, but they are part of the issued capital. The liability attaching to partly-paid shares for calls is a safeguard to the company's creditors, although it may constitute a risk to the investor. Provided an uncalled liability is spread over a number of shareholders or is held by a few persons of means, creditors may safely regard such unpaid calls as an additional asset, at least to part of the amount unpaid. The amount actually contributed may cover not only the par value of fully-paid shares, but also a premium paid for the shares when the company making the issue has a successful record. These premiums are treated as capital reserves. On the other hand, the amount actually contributed may be less than the par value of the shares, by reason of any discount allowed, which is carried forward in a discount account until extinguished by the appropriation of income. Proceeds from the sale of fixed assets are dealt with as capital receipts.

The cost of acquiring, constructing, reconstructing, extending or improving assets acquired for the purpose of earning income is capital expenditure. Typical assets are buildings, plant, machinery and stocks. When investments are made in acquiring assets of this kind, the capital expenditure is represented by assets of a tangible nature. Fixed capital is represented by fixed assets, whilst what is sometimes known as circulating capital is represented by current assets, *i.e.*, "cash and assets held for conversion into cash". For example, whereas buildings and plant are normally fixed capital to an industrial company which uses them over the years for the purpose of earning profit, these are current assets or stock-in-trade when held by a property-dealing company or machine-tool company respectively for the purpose of sale instead of for use.

Expenditure of a capital nature may, however, be incurred in acquiring intangible assets, such as goodwill, patents and trade marks, or in the preliminary expenses of forming a company. It is not considered good practice to permanently capitalize expenditure on intangible assets, although, legally, this may be done; but amounts of this nature are preferably written off from the capital account over a period of years by making annual charges against profits.

Revenue expenditure consists of items of cost incurred in maintaining earning capacity and in operating outgoings required for the carrying on of business. Examples of revenue expenditure are wages, salaries, rents, rates, insurance and material used. Revenue or operating incomings comprise all income arising, whether actually received or not, as the result of operational activities. Examples are income from the sale of products, services rendered and commissions earned.

The immediate advantage expected from revenue expenditure, either in earnings or in maintaining earning capacity, compares with the lasting advantage expected from capital expenditure. Marginal cases often arise. For example, when second-hand plant is purchased and then repaired in order to make it fit for use, both the initial cost of the plant and the cost of its repair comprises the capital cost of the asset to the purchaser. The cost of installing plant is also capital expenditure, whether the work is done by outside contractors or by the firm's own millwrights. Cost incurred in installing plant is capital

expenditure, but cost incurred in repairing it may be capital expenditure, as in the case instanced, or revenue expenditure as when made in respect of running repairs and maintenance. Often, when an item of "capital" expense is comparatively small or represents a benefit which is used up within a short space of time, it is convenient and desirable to treat the amount expended as revenue expenditure. Such expenditure arises in making small renewals of plant and in the purchase of loose tools and equipment.

Where capital expenditure is represented by revenue earning assets held for gradual use in the business, it is usual to charge as a revenue expense, or operating provision, the estimated diminution in the value of the assets through use, by making a depreciation charge against profits. In this way, shareholders' capital is maintained intact as its distribution in the guise of profits is avoided. Other assets, such as freehold land, which are not subject to wearing out by use, are not depreciated. In addition to providing for the depreciation or reduction in value of fixed assets, operating provisions may be desirable to cover the diminution in value of current assets, arising as the result of current trading activities; for example, in order to cover losses in the book value of obsolete stocks or to cover bad debts. Where future obligations, such as for leasehold dilapidations, will arise in respect of expenses really appropriate to a particular accounting period, appropriate provision is also necessary against revenues earned.

Generally, the accounting principle is that expenditure represented at the close of the financial year or other accounting period by assets of value should not be charged to revenue or trading account, nor should the revenue account be credited with receipts carrying an obligation to repay. There is, however, no objection to carrying as an asset the cost of development work specifically incurred where there is a strong expectation of its continuing value to the business and of its being reflected in future profits. The cost may be reduced year by year by making an equivalent charge against revenues as benefit is received. Continuous expenditure on research and development incurred to maintain a competitive place in industry may be properly regarded as a normal element of cost.

The Trial Balance

Thus accounts are classified as capital accounts or asset/liability accounts and revenue accounts or receivable/payable accounts. In order to prove the arithmetical accuracy of the balance disclosed by the various accounts of a business, a trial balance is usually prepared by simply listing the balances disclosed on each account according to whether the account relates to capital or revenue and the balance is in debit or credit. With this arrangement of accounts in a trial balance, it will be observed that the net balance of all the capital accounts is equal and opposite to the net balance of all the revenue accounts.

Before a trial balance is prepared, closing entries are made in the accounts, on the usual debit and credit basis, whereby provision is made for known liabilities of uncertain amount, and consideration is given to such matters as bad debts, depreciation of plant and machinery, obsolescence of stocks-in-trade and to any other items which will

assist in making the accounts reflect as nearly as possible the true position.

As a result of the application of the convention that the receiving account is debited and the giving account is credited for each transaction made, debit balances on capital accounts represent assets, whereas credit balances represent liabilities and debit balances on revenue accounts represent expenses incurred, whereas credit balances represent income earned. A net debit balance on a capital account represents an asset, whereas a similar balance on a revenue account represents an expense. The apparent anomaly disappears with the realization that an asset is represented by capital expenditure just as an expense is represented by revenue expenditure.

The following is a simple trial balance, which will be rearranged in order to show the capital accounts separately from revenue accounts :

TRIAL BALANCE		
<i>Accounts</i>	<i>Debit Balances</i>	<i>Credit Balances</i>
	£	£
Administrative expenses	3,000	
Buildings	10,000	
Cash	2,000	
Creditors		5,000
Debtors	5,000	
Discounts received		100
Depreciation of plant	2,000	
Investments	2,000	
Income from investments		200
Loan received		5,000
Purchases	16,000	
Plant (less depreciation)	20,000	
Production expenses	3,300	
Rents and rates	1,000	
Share capital		25,000
Opening stocks-in-trade	3,000	
Salaries	2,000	
Sales		44,000
Wages	10,000	
Total debits = total credits	<u>£79,300</u>	<u>£79,300</u>

The following shows the trial balance rearranged to show capital and revenue accounts separately after introducing the closing stock-in-hand :

<i>Capital Accounts</i>	<i>Debit Balances</i>	<i>Credit Balances</i>
	£	£
Buildings	10,000	
Cash	2,000	
Creditors		5,000
Debtors	5,000	
Investments	2,000	
Loan received		5,000
Plant (less depreciation)	20,000	
Share capital		25,000
Closing stocks-in-trade	4,000	
Balance (net income)		8,000
	<u>£43,000</u>	<u>£43,000</u>

<i>Revenue Accounts</i>		£	£
Administrative expenses		3,000	
Depreciation of plant		2,000	
Discounts received			100
Income from investments			200
Purchases		16,000	
Production expenses		3,300	
Rents and rates		1,000	
Salaries		2,000	
Sales			44,000
Stocks (opening and closing)		3,000	4,000
Wages		10,000	
Balance (net income)		8,000	
		<u>£48,300</u>	<u>£48,300</u>
Aggregate totals		91,300	91,300
Less balances	£		
closing stock	8,000	12,000	12,000
	<u>4,000</u>		
Original trial balance totals		<u>£79,300</u>	<u>£79,300</u>

The list of revenue accounts and their balances constitute the profit and loss account, whereas the list of capital accounts and their balances form the balance sheet. In practice, the figures shown in these two final statements of account are arranged so as to clarify their significance.

As the balances of the capital accounts show the same net result as that disclosed by the balance of the revenue accounts, any movements in the capital accounts will, in their net results, show the net income of the period during which the differences have arisen. For example, consider for a moment the movements in the capital accounts disclosed by a simplified trial balance taken out at the beginning and end of the financial year :

<i>Capital Account</i>	<i>Opening Balances</i>		<i>Closing Balances</i>	
	<i>Dr.</i>	<i>Cr.</i>	<i>Dr.</i>	<i>Cr.</i>
	£	£	£	£
Buildings	10,000		10,000	
Cash	1,000		2,000	
Creditors		4,000		5,000
Debtors	2,000		5,000	
Investments			2,000	
Plant	14,000		15,000	
Share capital		25,000		25,000
Stock	2,000		4,000	
Balance (net income)	—	—	—	8,000
	<u>29,000</u>	<u>29,000</u>	<u>38,000</u>	<u>38,000</u>

The movements summarized are :

	£	£
Cash	1,000	
Debtors	3,000	
Investments	2,000	
Plant	1,000	
Stock	2,000	
	<hr/>	9,000
Less creditors		1,000
		<hr/>
Balance (net income)		8,000
		<hr/>

Periodical statements of capital balances and their movements provide useful comparative information for management. Apparently, capital accounts are not independent of one another, for debtors' accounts represent sales less cash receipts; creditors' balances represent purchases less cash payments; stock-in-trade represents purchases less stock used; cash-in-hand represents cash received less cash paid, whilst the amount of cash available depends upon cash resources and the credit limits applied to customers and by suppliers. Thus, all business activities are eventually reflected in the cash position which limits the volume of activity.

Now the volume of activity is represented by work done, some of which may be in progress and the rest despatched as sales to customers. Therefore, having established the volume of activity, the most urgent need is to ensure that it is expressed in sales and not in excessive or unbalanced stocks and work-in-progress, because sales help to readjust cash resources, whereas work-in-progress and stocks tend to dissipate them.

From the capital aspect, it is necessary to ensure that capital commitments can be met and that production resources do not call for a greater volume of activity than can be met from current cash resources. A cash budget is needed to cover both capital and revenue accounts. In addition, adequate systems are required of production and stock control on the physical side and cost and price control on the financial side, so integrated with one another as to form a balanced control over the total activity of the business, with, however, the important provisos that controls should be sufficiently flexible to allow for changing conditions, whether rapid or gradual, and used so as to promote and not to hinder human ingenuity, enterprise and initiative.

Accounting Conventions

The annual accounts of a company, whatever their form, must give a true and fair view of the state of the company's affairs at the end of each financial year and of its profit or loss for each year. With the development of accounting, a number of conventions have become recognized in the preparation of accounts. Whilst some of these are universally accepted, others are in a state of gradual development. It is generally accepted, for example, that, except where otherwise stated, consistency of accounting treatment has been maintained, and this has to a large extent been given statutory recognition. The convention of consistency does not imply that improvements in the

form of accounts or in the more precise ascertainment of profits are not allowed. It is also generally accepted, as business is normally a continuing process, that accounts are prepared on the assumption of a "going concern" having an apparently permanent existence—thus accounting takes no cognizance of "break-up" values as such. In many cases, it is considered that revenue from sales arises at the moment when the sale is deemed to occur; but, in some cases, as will be noted, earning power tends to be regarded as the basis of profits.

Accounting periods are necessarily discrete, whereas business is normally a continuing process, hence the need arises to show a true and fair view of the trend of affairs and to avoid needless distortions and anomalies.

The statutory accounting period is a year. With frequent or regular sales of relatively small amounts, a true and fair view is generally given when profits and losses are recorded at the time of sale. Thus, the convention applies that profits arise at the moment when a sale is deemed to occur. It may be otherwise, however, when there are continuing transactions of relatively large amounts; for example, as in the case of engineering and building contracts. Modern practice tends to acknowledge earning capacity as the measure of profits, so much so that in these cases credit may be taken periodically for part of the anticipated total profit. The extent of this anticipation will, however, depend upon the terms and conditions of the contract and the surrounding circumstances. In any case, the facts should be disclosed if anticipated profits are so apportioned. In these cases, too, the convention applies that annual accounts are presented on the assumption that business begun in the year will be duly completed, unless, of course, the contrary is stated in the accounts. Even with frequent or regular sales of relatively small value, profits are shown on the assumption that, except in those cases where provision is made for bad or doubtful debts, all debts shown as outstanding will, in fact, be duly paid by debtors. There is always a risk, particularly noticeable under uncertain economic conditions, that some debt may prove to be bad, just as there is also a chance in the case of extended engineering contracts that some unforeseen misadventure may arise. Subject to these practices, it is conventional to avoid anticipating profit. The tendency is to be conservative; but care is required to ensure that conservatism in profit-taking does not lead to the foundation of secret reserves, the existence of which prevents a true and fair view of affairs being shown by the accounts.

In times of relatively stable monetary values, the convention that fluctuations in the value of money may be ignored from an accounting point of view was valid for all practical purposes, for the gradual decline taking place in the value of money was usually more than matched by a real increase in physical worth. The rapid decline which has taken place within recent years in the real value of money, coupled with penal rates of taxation, has caused the convention to be widely questioned that reductions in the value of money may be ignored for accounting purposes. If internal resources are inadequate to provide extra amounts for replacements, so that assets can be

replaced only by raising extra capital from outside the business, the effect is that existing shareholders have surrendered part of their physical worth, which, it is widely contended, the company, as a going concern, ought to maintain from internal resources. Moreover, it is contended that a balance sheet based on historical costs over a period during which the value of money has radically declined does not give a true and fair view of the real position, apart from perpetuating the elementary arithmetical error of aggregating units of currency of apparent, but actually different, value. For if there has been a change in the purchasing power of money between the date when a transaction was made and that on which the accounts are prepared, the currency in which the transaction was made is different from that current when the accounts are prepared. Unless revenue and charges against revenue are expressed in currency of the same purchasing power or adjusted to reflect the same effect, it is contended that profits cannot be correctly ascertained and unrealistic balance-sheet values arise which are misleading. As taxation is based on orthodox accounting, the profit reported by historical balance sheets in a period of declining purchasing power of money could disguise the fact that industry is handing over part of its real capital to the Government in the form of taxation and, in effect, releasing its capital resources for revenue purposes, so reducing future earning power, apart from draining companies of funds needed to preserve their physical worth. The point is sometimes made that when assets are replaced, improvements are often incorporated which make for greater productivity; but even where, as hardly ever arises, this benefit equates the extra cost of replacement plant caused by price inflation, the normal advantage otherwise obtained of more competitive trading is lost.

The incidence of inflation varies according to the particular circumstances of each company, and is in all cases affected by fiscal policy. The time factor, potential selling prices and profits, and even former financial policy as regards profits retained and distributed are all relevant. The magnitude of the problem may be exemplified by considering the case of a company, paying $47\frac{1}{2}$ per cent of its profits in taxation, which has to replace, at thrice their original cost, assets which were purchased for £100,000 and are being depreciated in the accounts at a rate equal to that adopted in making wear-and-tear allowances for taxation. The total profits required to replace the plant originally costing £100,000 amount to £480,952, *i.e.*,

$$£100,000 + \left(\frac{100}{52.5} \times £200,000 \right) = £480,952.$$

During the inflationary period of a seller's market, industry generally operates at a relatively high level of activity which ensures additional profits. The alert industrialist may also seek to secure additional profits through increased selling prices with a view to maintaining his physical worth, so far as the time factor and potential selling prices and profit margins allow him to do so. In the example mentioned he would have to multiply the annual charge for depreciation by almost five in order to recoup the position. In practice, as the future life of the plant

would be restricted by its period of previous use, the increased charge for depreciation would in many cases be prohibitive, and he would need to consider to what extent the possibility exists of earmarking accumulated reserves, if any, to relieve the position, with the knowledge that probably such reserves would already be fully employed in the business as working capital in the form of inflated stock values. He should at least ascertain the realistic position by revaluing his assets and assessing their prospective life and renewal cost. The fact that only a prophet can estimate the replacement cost of plant in " x " years time provides no valid reason against taking action, for ample opportunity will arise in future years to make any necessary adjustment for further changes in the purchasing power of money.

Whether or not there should be legal recognition of changes in the purchasing power of money is a question which raises serious economic and social issues. Indeed, an important body of opinion, although concerned with the problems created in industry by the reduced purchasing power of money, see many difficulties and complexities in departing from the conception of profits based entirely on historical cost. Many doubt the validity of the hypothesis upon which the conception of profits determined after charging against revenues the additional provisions required to cover the replacement values of assets is based. However, in some Continental countries, fixed assets and, in some cases, stocks-in-trade, have been "revalorized" by reference to specific official price indices, as part of a currency stabilization process. Similar coefficients are also applied to rates of depreciation and the net increase credited to a revalorization reserve, the amounts so placed aside being exempt from taxation, although the relief thereby provided is not necessarily equitable from the point of view of taxpayers in general.

If a decision were taken to regard provisions made on the basis of replacement cost as legal charges against industrial profits otherwise available, both the real equity of shareholders' holdings and the interests of debenture holders and other creditors in respect of their rights against the company's assets would be protected. On the other hand, such a decision if applied only to industrial profits would considerably reduce the taxable profits of industry, presumably at the expense of other sections of the community. During a general decline in the purchasing power of money, shareholders cannot expect automatically to enjoy special privileges; but industrial undertakings are free, within the practical limits mentioned, to protect their physical worth, although this procedure may aggravate inflationary trends, and further reduce the purchasing power of money.

In order to show the true trend of profit and net worth, proposals have been made that profit and loss accounts and balance sheets should be compiled in terms of stable monetary values; for example, year 1938 values, or that items entering into the final accounts should be translated into these values by means of a suitable index or series of indices. The index would need to represent changes in the purchasing power of money rather than changes in the prices of different articles, so that price fluctuations which are independent of changes

in general purchasing power are not masked in a figure which purports to show solely the results of change in the purchasing power of money. The determination of a generally acceptable index would present a difficult task, for not only would there be need to introduce a measure of uniformity, but results in individual cases would need to be uniformly accurate if confidence in the use of the index were to be assured. Unless all the items entering into the accounts were converted into the "stable currency" the accounts could not reflect, in a period of inflation, the loss in purchasing power arising from the holding of liquid and near-liquid assets, such as investments and debtor balances, or the gain arising on fixed monetary liabilities. Similar considerations conversely apply in a deflationary period. Any index derived for this purpose would need to be available in an up-to-date form for use at any time in accounting work. Information so prepared and published in statements supplementary to accounts based on historical cost would not only be of interest to shareholders and serve as a guide to management, but it would have important consequences if it made people realize the evils of monetary instability.

The erosion of industrial capital is merely one of the symptoms of inflation in the national economy. The fundamental question to be resolved from the national point of view is whether or not legal recognition should be given to radical changes in the purchasing power of money, with all the consequential adjustments entailed of legal rights expressed in monetary terms. The absence of such a political decision prevents realistic adoption of the conception to regard as legal charges against profits the amounts set aside from earnings towards the increased cost of replacing assets. In view of the unlikelihood of political action in this respect, the practical alternative is to adopt the conception of profit which regards such extra provisions as appropriations from historical profits. If this is not done, but extra provisions are made as charges against profits, rather than as appropriation of profits, the amounts related to the extra replacements cost should be separately labelled and disclosed as policy adjustments in the operational section of the profit and loss account. Some of the accounting anomalies which arise in providing for extra replacement costs of plant and other fixed assets are examined in Chapter 15.

CHAPTER 9

COSTING PRINCIPLES

STATUTORY accounting, as the term implies, provides a record of stewardship which accords with the requirements of fiscal and company law, whereas management accounting is complementary and serves management at all levels of responsibility, irrespective of company stature, through the production and presentation of figures to promote the efficient conduct of affairs, particularly in the managerial functions of planning and control. Accuracy requires that both should form a complete system of accounting which fulfils the requirements of stewardship but is primarily designed to meet the practical needs of management in covering the financial aspect of planning and control through budgeting and costing systems which are integrated in their physical aspect with programming or the master scheduling of production and sales. Their differences are merely of accounting classification, reporting and urgency in providing information for effective action, either constructive or remedial as may be required.

Costing is a process which requires the application of judgment rather than the rigid application of invariable rules ; it is not an exact science and the expression " a correct cost " is relevant only to the purpose for which the cost is ascertained ; for example, marginal costs used as the basis of decisions involving increased output from existing resources differ from opportunity costs compiled in considering plant investment programmes. The true purpose of costing as a function of management accounting is to provide control information, whilst its importance rests upon the ability to translate and picture productive, commercial and managerial effort in terms of monetary values.

Costing is objective so far as it records and measures events in financial terms and is creative to the extent that it serves to guide the development of policy. The impact of prospective changes on existing costs is particularly important in policy-making. In physical terms, controlling costs means, in fact, controlling men, materials and machines. It is true that a costing department cannot usually prevent wasteful incidents happening in the factory as quickly as the man on the spot ; nevertheless, costing provides a means of avoiding continuing waste and of assessing the efficiency of all aspects of management expressible in financial terms so far as economy and productivity are concerned.

The purposes of costing include expense ascertainment, budgetary control, evaluation of operating policies, valuations of stocks and work-in-progress and, in many cases, price-fixing. It is important in approaching costing problems to consider the effect on total costs of any change which may be contemplated in particular elements of cost. However, the extent to which detailed costing is required depends on

the circumstances of each case ; for example, costs required as the basis of decision regarding alternatives may be restricted to the amount of any additional cost or of any saving anticipated.

Prime Costs and Overheads

Industrial costs consist of direct and indirect expenses. Direct costs are incurred for materials which are wholly or partly converted into finished products, for labour which is specifically allocable to the conversion of these direct materials and for expenses which are directly incurred for and are, therefore, chargeable against particular products. Indirect costs, usually referred to as overheads, are those which by their nature cannot be specifically traced to individual products. Industrialists are often faced with problems which involve the allocation of overhead costs, as, for example, in making decisions concerning price policy, in fixing the relative output schedules of various products and in considering the inclusion or exclusion of certain items from their range of products. Clearly, if the methods used are not strictly appropriate to the circumstances, unsound policies may be formulated with disastrous results. Of course, when the output of a factory consists simply of standard articles, all costs are appropriate to their output, in so far as the factory is working at a normal level of activity, although only direct costs are directly and precisely identifiable with individual items or batches of output.

When production is diversified so that a number of product-groups exist, overheads may be dealt with according to whether they are separable to various product-groups or common to all products. Common overheads consist of fixed costs which are independent of the volume of output within the accounting period and are not identifiable with specific products and also of variable outlays of the accounting period which are not directly attributable to particular products. These fixed costs include allocable fixed costs which are expected to contribute to the output of more than one accounting period. For example, the cost of assets of a durable nature to be used for the purpose of manufacture is regarded as an allocable fixed cost, whereas managerial salaries are recurrent fixed costs. Allocable fixed costs may be apportioned either by deciding what proportion should be carried forward as assets, leaving the residue chargeable as revenue, or what proportion should be chargeable as revenue, leaving the residue to be carried forward as an asset. In recent years, the latter approach has been the more emphasized. Some recurrent fixed costs, such as those of advertising and research, represent outlays which are more appropriate to future accounting periods, although they are not often capitalized in accounting practice. As will be later observed, the relative incidence of fixed and variable overheads is of fundamental importance.

Overhead costs are conditioned by the type of business concerned, its productive capacity, the length of period to which the costs are related and are influenced by such factors as the extent to which, as a result of its historical growth, the undertaking is economically estab-

lished and, within the limitations set by the resources available, is efficiently operated. Efficient operation is a function not only of the individual efficiencies of each element of production and distribution, but is dependent also upon securing a satisfactory balance of all these elements through effective management.

Overhead expenses may be classified in a variety of ways to suit the particular circumstances of the organization concerned. For example, these expenses may be directly or indirectly allocated to production shops, production service departments, engineering and development departments, research departments, sales and distribution departments and general administration departments. Costs directly applicable to departments other than production shops may be re-allocated with varying degrees of accuracy to production shops and/or product groups so that product costs may be determined.

Cost Allocations

Primary allocations of expense are usually made to headings which indicate by their titles the nature of the expenditure ; for example, production materials, fuel, carriage, thus permitting comparisons to be made periodically of each class of expense incurred. Comparative and detailed analyses of cost under each heading may be used to detect wastage, extravagance or over-buying. These primary cost allocations do not, however, show the cost of individual departments and products, so that secondary allocations are made in order to relate costs to functions or cost centres. The term " cost centre " is used in a general way to describe any part or section of an organization or of its activities for which costs are compiled.

Allocations of indirect costs require a decision regarding the basis of allocation and the length to which the allocation process should be carried. The factor chosen as the basis of allocation should itself be readily measurable and fluctuate with the source of cost to be allocated. For the process of cost allocation assumes that the amount allocated and the basis adopted are correlated. If no relationship exists, then resulting allocations are arbitrary and may result in wrong decisions being made. Any allocation made of common fixed costs is, of course, completely arbitrary in its incidence, although many occasions arise when some apportionment is required. In making secondary allocations it is important to preserve the identity of each primary allocation, or of each group of primary allocations where these are too numerous to be dealt with individually, so that, for example, costs allocated to departments, product-groups, or other cost centres, are clearly itemized in accordance with the system of primary allocations in use. Moreover, it is desirable to so design the form of secondary allocations as to maintain the distinction between fixed and variable expenses.

The extent to which detailed reports are required depends on the level of authority concerned with the information provided ; but, as speed and simplicity are essential if the information is to be used as the mainspring of effective managerial action, unnecessary refinements in the allocation of overheads should not be allowed to complicate,

delay or obscure the presentation of costing reports. When allocations of expenses are made in accordance with functional responsibilities, for example, to particular departments or activities, it is desirable, where practicable, to make the allocations in such a way as to reflect the ability of the person responsible to control the expenditure ; for example, a charge for metered consumption of electricity is preferable to an allocation made on the basis of floor areas. In cases of this kind, quantitative as well as financial allocations are desirable, as factory executives are more used to dealing in physical rather than in financial terms. Incidentally, it is generally inappropriate to load the cost of various inefficiencies on to particular batches of work where the incidence of error is fortuitous, as, for example, where faulty materials, such as porous castings, cause excessive scrap.

Tertiary allocations of overhead expenses are often made as when primary costs allocated to service departments are re-allocated to various operative departments benefiting from the service. Allocations may be made on the basis of actual cost or at fair market rates which reflect economic costs. Where rates other than those based on actual costs are used, a surplus or deficiency may arise in the secondary cost accounts, representing either an under- or over-recovery of overheads. Inter-actions often take place among service departments ; for example, the personnel department services the sales department on employment matters, but there is little if anything to be gained by making cost allocations to reflect the incidence of these inter-services. Where, however, inter-service allocations are deemed to be necessary, it is preferable first to allocate the costs of the service departments which are least dependent on the others and to make any charge appropriate to service departments first allocated on an estimated basis. In some cases, rates of charge may be equated and dealt with on an average basis, as reflecting their co-operative nature, in order to avoid making charges for identical services at different rates which have arisen fortuitously, when through historical accident similar assets are purchased at different times.

Various methods are used in order to allocate overhead expenses to direct costs of production, for example, as a percentage of direct labour cost, material cost or prime cost. Although these methods are easy to apply as simple percentages, allocations are often made on the basis of direct labour hours or machine hours, in consideration of the fact that the time factor is important in the accrual of overhead expenses. In other cases, allocations are made according to units of output, so acknowledging the importance of volume of production as greatly influencing overhead cost rates per unit of output.

When overheads are expressed as a percentage of the cost of direct labour, a simple means of allocation is provided which approximates to the time factor, when there is only one class of labour with the same standard rate of pay. Unless this method of allocation is restricted to variable overheads, it may, where fixed costs partly relate to idle capacity, result in allocating the costs of idleness to those of a production centre which is already working at its maximum capacity. When overheads are expressed at a rate per man-hour, a closer approxi-

mation is made to the time factor than when labour cost is the basis. When an operator looks after more than one machine, the overhead rate is preferably expressed at so much per machine hour. The expression of overheads at a rate per unit of product is applicable when there is a standard product or varieties of a similar product. Of course, any combination of these methods may be appropriate, for example :

CONVERSION AND DISTRIBUTION COST PER 100 ARTICLES

	<i>Hours</i>	<i>Machine Hour Rate at Standard Volume</i>		<i>Allocation</i>	
				<i>£</i>	<i>s. d.</i>
Machine A. . . .	10	10/-		5	- -
B. . . .	20	15/-		15	- -
C. . . .	12	12/-		7	4 -
	42			27	4 -
Operative wages—42 hours at 4/-				8	8 -
Assembly wages—100 hours at 2/6				12	10 -
Assembly overheads—50 per cent of wages				6	5 -
Conversion cost				54	7 -
Distribution overheads—100 articles at 1/- each				5	- -
				£59	7 -

Apart from the fact that by definition overheads do not admit of precise allocations to specific products, other anomalies may easily arise in allocating overhead costs. For example, it is not appropriate to make allocations on the basis of expenditure in previous accounting periods unless the production volume and the mix of products remain substantially unchanged. Where overhead costs are allocated on a budgetary basis for the purpose of price-fixing, it is essential to take into account any "floating" costs over- or under-absorbed.

Particular difficulty arises in attempting to allocate the common overheads of a business which manufactures a variety of products. Common costs, for example, establishment charges, are clearly in the nature of co-operative costs, because any variation in the output of one product must inevitably vary the amount allocated to the other products. In many cases, too, some non-manufacturing expenses are so remote from the shop floor that no logical method of allocating them to various products exists. Nevertheless, it may be felt that some allocation of common overheads is necessary ; for example, in price-fixing or in considering the alternative use of resources. A clear-cut method in such cases is to allocate common overheads on a flat percentage basis to the factory cost of sales in each product group, distinguishing between their cost at normal activity and any variation caused by off-normal activity. The allocation may be made in one or more stages according to circumstances. For example, engineering overheads may be applied to the factory cost of sales, with selling costs allocated to the resulting totals, finally loaded with allocations of general administration expenses. This method is, however, not always appropriate ; for example, when one product consists of relatively

expensive materials, or when the ratio of domestic to external costs varies widely among products. In order to meet cases such as these, the allocations may be appropriately made on the basis of relative conversion costs, that is, on factory costs exclusive of the cost of materials and purchased components. Where purchased components are designed internally, it may, of course, be more appropriate not to exclude their cost in the basis of apportionment. In other cases, weighted loadings of common overheads may be derived in which variations in the nature and volume of outputs are given due consideration. In all cases where arbitrary apportionments of this kind are made, it is most important to keep in mind their limitations as regards accuracy.

A further point of importance in connection with the allocation of overheads relates to costs which reflect idle capacity. In many cases these costs are, in fact, essentially part of production costs, because it is impossible, except in the case of special process plant and specialized plant layouts, to so balance each group of plant with covering sales that it can continue to operate indefinitely at maximum capacity. Costs of idle capacity are usually in the nature of fixed costs. Where these are not to be regarded as part of the cost of products manufactured, they may be segregated as an unabsorbed expense which requires close consideration.

Costing Systems

Costing systems are many and varied, but may be classified basically according to whether their purpose is to produce historical or standard costs.

Historical costs, commonly regarded as actual costs, may be applied either to job costing or to continuous process costing. In job costing, or specific order costing, the expenses applicable to each particular job are accumulated to give its total cost. This kind of costing is inherently expensive because of the volume of clerical detail involved. It also has the disadvantage that any unprofitable job is detectable only after its completion when the opportunity of taking remedial action has passed. In the case of long production runs, however, the historical costing procedure may be varied slightly by splitting the production order into batches and costing each batch as if it were a specific order, so that costs can be ascertained as each batch is completed. When, as often happens, different costs are obtained for various batches, investigation is required to ascertain reasons for any abnormal differences, if the risk is to be avoided of comparing one uneconomic cost with another. Historical job costing not only obscures inefficiencies, but the chance of error in dealing with a large volume of paperwork is high and, apart from the delay factor in collation, is the further delay in, and expense of, proving costs, for alternative costs of similar products may reflect inefficiencies without disclosing them.

Continuous process costing accumulates and transfers costs from process to process as manufacture proceeds, so that for each accounting period the average unit costs of manufacturing the end-product are

ascertained for each process and in total. Continuous process costing is, however, more economical than job costing because, in effect, the number of jobs costed in a year is limited to the number of manufacturing processes and accounting periods. Although costs are ascertained for each accounting period, thus making available unit costs of manufacture for each process, no clue is provided as to the cause of any variations in cost. Comparisons are still more invidious when products are not sensibly homogeneous for each accounting period.

Unlike historical costs, a standard cost system places the accent on control by spot-lighting excess costs in time for remedial action on the part of management. Standard costing is also economical in clerical labour and paper-work, for the separate costing of each job is obviated and time is saved by adopting the principle of exceptions in detecting those costs which need managerial attention. On the other hand, the introduction of an effective standard costing system is dependent on the existence of reliable manufacturing standards. The fairly rapid spread of standard costing which has taken place is a tacit assumption of the failure of historical costing methods to give adequate service to management under modern industrial conditions.

Joint and By-product Costs

Under joint-product conditions, two or more products inevitably arise from the inseparable processing, either wholly or partly, throughout the manufacturing cycle, of a common raw material, *e.g.*, the joint production of coal gas and coke. The distinction between the manufacture of joint-products and by-products is merely one of degree. When a residual product is obtained incidentally to the processing of the main product or products, the ancillary product is regarded as a by-product, *e.g.*, by-products to the joint manufacture of coal gas and coke are coal tar, sulphate of ammonia and benzole. It sometimes happens that a new product is developed as a joint-product from the use of by-product materials for which no profitable use was previously known.

The manufacture of joint-products and by-products emphasizes the costing problem which inevitably arises in treating joint costs, for where joint-production is indivisible costs are necessarily common and strictly inseparable. Common costs also arise, of course, to a lesser degree when certain costs are attributable to more than one product as a result of managerial decisions rather than from the nature of the plant or process. For example, in mixed manufacture many costs which are direct as to major segments of the business, such as engineering, production and distribution, are common when applied to subdivisions of these segments, such as product-groups or sales areas. Conversely, costs which are separable by-product lines may become common costs if management finds it more profitable to combine various activities.

Although common costs are in the nature of joint costs, the characteristic of joint, as distinct from common, costs is that they are concerned with production in which an alteration in the output of one

product necessarily involves a pre-determined change in the output of the other product. So long as the output of one product necessarily involves the production of another product in fixed proportions, it is impossible to assign any of the joint-process costs to the individual outputs, for the aggregate output is responsible for the aggregate costs, and so any attempt to allocate their joint costs is impracticable and of little use as a basis of policy. More usually, however, joint products arise in proportions which are variable within limits, either with or without a change in costs. Where changes in cost arise, operational research may derive data expressing the effect on process costs of any variation in the proportion of products and thus assist in enabling the plant to be operated at its optimum level of profit. For the purpose of making a choice between alternatives of this kind, it may be sufficient only to know how the costs will differ for the various conditions of choice, in which event the need does not arise to allocate those costs which remain constant.

However, where some assessment is needed of the relative share of total costs attributable to each joint product, various methods are used in practice. In one method, based on the theory that products should contribute to joint costs in proportion to revenues derived from their sale, joint costs are allocated in proportion to market values. Direct costs incurred in processing each product beyond the point of joint production are deducted from the total selling price of each joint product before the allocation of joint costs is made. This method is clearly affected by fluctuating market prices and, in any event, the selling prices of different products may not accurately reflect the incidence of joint costs incurred up to the point where production is separated. An alternative method allocates joint costs to their associated products on the basis of the physical volume of raw materials residing in the joint products at the point of separation in their manufacture. Thereafter direct items of cost are allocated to each product from their point of separation to the point of completion. This procedure is especially inaccurate when the common raw material is not homogeneous in quality and each main product requires its particular quality of ingredient. In such cases greater accuracy may perhaps be obtained by making allocations of joint costs on a weighted basis, *e.g.*, calorific content. The fact that no really logical method exists of allocating joint costs of production has resulted in the use of arbitrary methods of apportionment on a percentage basis, in which due consideration is given to all the relevant factors concerned in producing and marketing joint products. This survey method of apportioning costs to joint products, based, as it is, on a detailed technical investigation and appraisal through operational research of the relative importance of the various factors involved, has much to commend it.

Various methods are used for assessing the cost of by-products, for whether their value is positive or negative, it is a matter upon which management cannot be indifferent in assessing the profitability of a process by aggregating net revenues from all the related products. When by-products have a market value which is relatively unimportant in comparison with that of the main product, it is usual not to attempt

to make any allocation of cost to the by-product of any part of the joint costs up to the point of separation. In some cases all income from the sale of by-products is considered as sundry income, whilst the main product carries all the costs of production, and revenue from the sale of the main product alone is regarded as operating income. Although this method is easy to apply, the stock valuations and cost of sales of main products are overstated and operating income is understated, so that this arrangement is appropriate only to by-products of relatively slight value. A more satisfactory method is to deduct from the cost of the main product the net revenue obtained from the sale of by-products after the deduction of selling expenses incurred in disposal. This procedure is not, of course, appropriate if the realizable value of all the by-products exceeds or approximates to joint costs, for the allocation of joint costs to main products under these circumstances would give a negative or insignificant value ; but, by definition, this condition is hardly likely to arise in the case of by-product costing.

Management Accounting Statements

The preparation and prompt rendering in simple and unambiguous terms of comparative statements of costs, revenues and profits is vitally necessary to good management. It is clearly economical to conserve the time and energy of higher management for matters of importance by reporting in concise terms which clarify performance, variances and trends whilst avoiding unnecessary and vexatious detail in matters of minor significance. Reports should be designed to meet the needs of those who use them and for increasing detail over a narrowing field of managerial responsibility to prompt action by "high-lighting" significant facts of strength and weakness which focus attention accordingly. Explanatory memoranda should serve to facilitate interpretation and supporting detail should be available when requested or deemed necessary. No arithmetic should be required of the reader.

It is particularly important to realize when preparing cost reports that costing is neither a matter of absolute fact, as it requires the use of various accounting conventions, nor an end in itself ; but an aid to good management. Apparently the precise ascertainment of profits is possible only over the whole life of an industrial undertaking, for, considering extremes, with an accounting period of merely a day instead of the normal year, most maintenance expenditure would be of a capital nature, whereas with an accounting period of several years, most expenditure on assets would be of a revenue nature. Hence, in seeking to match costs and revenues over a short period, such as a month, in order to assess financial results, the problem arises regarding expenditure made prospectively as to which costs should be considered as having been incurred in earning the revenue of that period. In determining periodical profits, judgment is necessary of the prospective performance of existing assets in future periods. These decisions are not only important in themselves, but they form the basis of other

decisions in which costing plays a vital part in enabling management to exercise control over all kinds of industrial activities.

The cost of maintaining the costing system should never be allowed to outweigh the advantages derived from its use and, for this reason, periodical reviews should be made so that any routine statements which have become unnecessary are no longer issued. In many cases spot checks made in great detail lead to cost reductions, whereas action is often less likely to follow the issue of routine cost reports. In any event, policy and control should always be ahead of incurred costs. Where policy which is causing financial danger signals to arise remains unaltered, it is important to infuse a sense of urgency so that the situation does not get out of hand by action being indefinitely delayed. In appropriate cases it is often useful to segregate controllable and uncontrollable costs, and, on psychological grounds, to identify each accounting centre with the person responsible. To summarize, efficient reporting expresses truth appropriately as to the timing, relevancy and usefulness of information conveyed, with brevity, clarity, consistency and impartiality.

Statements of cost and income take various forms. The following example provides comparative figures, together with a percentage analysis of the total. The disadvantage of this form of percentage

PROFIT STATEMENT						
	<i>This year</i>			<i>Last year</i>		
	£	£	%	£	£	%
Direct labour . . .	133,296		18.3	127,596		18.1
Direct material . . .	182,938		25.1	175,263		25.0
<i>Prime cost</i>		316,234	43.4		302,859	43.1
Indirect labour . . .	87,350		12.0	86,666		12.3
Manufacturing expenses . . .	31,526		4.3	30,295		4.3
Factory expenses . . .	63,152		8.7	64,296		9.2
Rent and rates . . .	7,674		1.0	7,363		1.1
Depreciation	35,550		4.9	36,100		5.1
<i>Factory overheads</i> . . .		225,252	30.9		224,720	32.0
Factory cost		541,486	74.3		527,579	75.1
Less work-in-progress increase		2,306	.3			
Plus work-in-progress decrease					1,263	.2
<i>Factory cost of sales</i> . . .		539,180	74.0		528,842	75.3
Administrative charges . . .	67,956		9.3	66,298		9.5
Selling expenses . . .	36,648		5.0	37,263		5.3
Publicity	26,004		3.6	28,295		4.0
Financial charges . . .	12,350		1.7	10,475		1.5
Directors' remuneration . . .	10,236		1.4	9,975		1.4
<i>Administration overheads</i> . . .		153,194	21.0		152,306	21.7
Total cost of sales . . .		692,374	95.0		681,148	97.0
Manufactured sales . . .		729,430	100.0		702,343	100.0
<i>Trading Surplus</i>		37,056	5.0		21,195	3.0
Estimated taxation . . .		23,000			12,000	
<i>Nett surplus</i>		14,056			9,195	

analysis arises from the fact that a variation in any one figure necessarily alters all the other percentages.

Even with comparative figures as shown in the example, misleading conclusions may be drawn unless additional information is given to enable a correct interpretation of the position to be made. We need to know the physical contents of production and sales represented respectively by the figures of costs and revenues. If, in two periods for which comparative costs are available, the physical volume of production and sales are widely different, or if the "mix" of products varies significantly, a reliable index is required in order to enable proper comparisons to be made. As a practical example, consider the following comparative statement as originally presented (A) and as presented in unit form (B) with the aid of a single index of comparative physical outputs provided by the use of the number of productive man-hours for this purpose.

(A)	TOTAL COSTS		
	<i>Last Qtr.</i>	<i>This Qtr.</i>	<i>Difference</i>
	£	£	£
Direct labour	21,729	24,376	+ 2,647
Direct material	15,326	15,575	+ 249
Other costs	45,263	46,586	+ 1,323
Total costs	82,318	86,537	+ 4,219
Sales	84,921	86,096	+ 1,175
Trading result (profit)	2,603	(Loss) 441	— 3,044

(B)	COSTS PER PRODUCTIVE MAN-HOUR		
	£	£	s. d.
Direct labour	·205	·211	+ 1½
Direct material	·144	·135	— 2½
Other costs	·426	·404	— 5½
Total costs	·775	·750	— 6
Sales	·799	·747	— 1 0½
Trading result (profit)	·024	(Loss) ·003	— 6½
Production man-hours	106,209	115,305	

Statement (A) shows that a previous profit of £2,603 has been converted into a present loss of £441 on higher sales, presumably because of disproportionate increases in the cost of direct labour and other expenses. On the other hand, Statement (B) gives quite another story. It shows that whereas total costs per unit of output have actually decreased by 6d., sales per unit have decreased by 1s. 0½d. Further enquiry in this case revealed four conditions :

- (1) Overtime working caused the increase in direct labour cost and slightly increased the unit cost ;
- (2) some new customers provided their own material in the current quarter and this slightly reduced the unit cost of material ;

- (3) the greater volume of output as a result of overtime working gave reduced unit cost of other expenses, as some of these were in the nature of fixed costs ;
- (4) in order to meet competition, prices had been reduced by granting special discounts with the result that unremunerative work was undertaken. This factor was the main cause of loss.

In the examples shown, production capacity is expressed in productive man-hours. An alternative approach is to express financial results in terms of standard units where there is a "mix" of products. For example, a basic model (Model A) may be selected as the standard unit as follows :

<i>Model</i>	<i>Man-Hours per Unit</i>	<i>Standard Units (A)</i>
A	200	1.0
B	100	0.5
C	300	1.5
D	600	3.0
E	50	0.25

Effective management avoids sterilizing capital in the form of unnecessary stocks and work-in-progress. If this is to be achieved, production and sales departments should equate their requirements and make ready adjustments with a minimum of paper work for changing market and production conditions. If the sales department estimates market requirements in terms of a varying mix of units, more or less production capacity may be needed. This difference may be readily ascertained by comparing the number of standard units required in each case. For example, if 20,000 standard units are needed for the present period against 15,000 for the previous corresponding period, it is apparent

that $\frac{20,000}{15,000} \times 100 = 133\frac{1}{3}$ per cent of the productive capacity used during the previous period is needed. As a standard unit represents in this example 200 productive man-hours, the extra man-hours needed are $200 \times 5,000 = 1,000,000$. If this is possible overall at a practical level of activity, the production department may give provisional agreement to the proposed marketing schedule, subject to their examination of the increased production requirements in possible "tight spots" of the manufacturing organization.

The adoption of the standard unit is also useful in equating sales, stocks and production. As an example, consider the case where the total number of units remains constant over a period, but their mix varies with a corresponding change in the number of standard units required. The example below shows that production is outstripping sales, causing uneconomic stocks to accumulate.

What many manufacturing businesses really sell is their cost of converting raw material into finished products. A test of efficiency in these cases is the success attained in transferring resources into goods, which can be expressed as the rate of labour conversion. The successful industrialist secures the most expeditious rate of conversion of labour, materials and stocks into sales and thence into cash. In effect, selling man-hours of productive capacity and so increasing

UNITS OF EACH MODEL				
	<i>Opening Stock Units</i>	<i>Prod'n Units</i>	<i>Sales Units</i>	<i>Stock Units</i>
<i>Model</i>				
A	500	1,500	1,000	1,000
B	3,000	2,000	2,000	3,000
C	2,000	2,500	1,500	3,000
D	1,500	1,000	500	2,000
E	3,000	3,000	5,000	1,000
	<hr/> 10,000 <hr/>	<hr/> 10,000 <hr/>	<hr/> 10,000 <hr/>	<hr/> 10,000 <hr/>

STANDARD UNITS					
<i>Std. Unit</i>	<i>Model</i>	<i>Opening Stock Units</i>	<i>Prod'n Units</i>	<i>Sales Units</i>	<i>Stock Units</i>
1·0	A	500	1,500	1,000	1,000
0·5	B	1,500	1,000	1,000	1,500
1·5	C	3,000	3,750	2,250	4,500
3·0	D	4,500	3,000	1,500	6,000
0·25	E	750	750	1,250	250
		<hr/>	<hr/>	<hr/>	<hr/>
		10,250	10,000	7,000	13,250

sales-volume as to utilize more fully production capacity is the most effective way of reducing unit costs and expanding profits. This is the reason why greater expenditure on sales effort to attain a higher production level is economical and profitable. In order to enable sales executives to take advantage of their profit opportunities, figures of profit potential may be made available to them.

Fixed and Variable Costs

Whilst unit profit and loss statements make the global accounts more informative, it is useful for the purpose of making business decisions to regard costs as being typically fixed or variable in relation to specified changes in the volume of production and/or sales. Whether the decision relates to alterations in the volume of production, or in the cost of input-factors, or in the price-level of sales, or to extensions or modernization of plant and facilities, it is important to direct and concentrate attention on prospective variations in costs and/or revenues, as well as on the incidence of prospective profit. Typical questions which arise are, "What reduction in selling prices could be made to stimulate sales, without impairing the present rate of profit, if the introduction of additional incentives was to increase output by 20 per cent and variable costs by 5 per cent?" and "If plant modernization would cost £100,000 p.a. and result in a reduction of 15 per cent in direct labour costs, whilst securing an overall increase in hourly plant output of 10 per cent, what would be the effect on total costs and profit at various levels of demand and price?" The concentration of attention on incremental costs and revenues should not be made on the unwarranted assumption that costs and revenues which remain unchanged can be ignored; for all costs, whether relatively fixed or variable, should be regarded as being subject at all

times to managerial challenge and decision in the interests of economy and effectiveness. It is wrong to assume that total fixed costs are irreducible, whereas total variable costs can be cut ; indeed, the reverse is sometimes nearer the truth.

For all practical purposes, the factors which influence the profitability of an industrial undertaking, apart, of course, from those concerned with the wisdom of its policies and the quality of its management allied to the skill and energy of its workpeople, are

- (1) the relatively fixed annual cost of providing and maintaining the buildings, plant, equipment and key personnel, which, in turn, depends to a varying degree upon the historical growth and technical characteristics of the particular undertaking ;
- (2) the relatively variable annual costs of running the business, which depend mainly upon the raw material contents of products, together with conversion costs comprising direct labour costs and other associated expenses ;
- (3) the selling prices of the various products ;
- (4) the “ mix ” of products, that is, the relative sales volume of each product in relation to aggregate sales volume.

The fact that total fixed costs are sometimes referred to as dead-weight costs indicates the incidence of their impact, whereas the reference to total variable costs as product costs indicates that their sum varies according to the volume of output. The distinction between total fixed and variable costs is essentially that variable costs respond quickly and noticeably to short-term changes in the rate of activity, whereas fixed costs tend to remain static irrespective of fairly wide changes in the volume of output, a distinction which is entirely divorced from the question of their relative curtailability. The extent to which costs may be regarded as relatively fixed or variable depends upon the circumstances of each particular case. In some cases it may be realistic to regard certain costs as being fixed within the ambit of present capital outlays, so long as significant changes do not occur in the level of input costs, such as establishment salaries. In other cases it may be more appropriate to regard costs as being relatively fixed within, say, ± 40 per cent of present output volume, if beyond these limits the anticipation is that economies in “ fixed ” overhead costs will be made at the lower limit, whereas additional fixed costs will arise if production increases beyond the upper limit. The response of variable costs to change in the rate of activity is not, of course, in the same proportion for each individual item of cost ; but the overall pattern of cost behaviour in this respect is usually well defined for a particular set of circumstances. However, during a period of rapid inflation during which costs increase at varying rates, some costs which are normally of a fixed nature do not remain so. Under these circumstances, economic costs which reflect replacement values are more germane than historical costs.

Total fixed costs are expressed by the well-known form of a rectangular hyperbola, as $xy = k$, where x is the variable cost per unit of output, y represents the number of units of output and k has a constant value which determines the slope of the curve. Total fixed

costs are, of course, variable costs per unit of output, because alterations of output will cause consequent alterations in costs per unit of output.

On the other hand, total variable costs alter in some proportion to total output, so that total variable costs are represented by fixed costs per unit of output which are, on the assumption of a linear relationship, independent as regards their unit value of the volume of sales. For the assumption is usually made, supported in fact by empirical studies made under normal economic conditions free from inflationary trends, that a linear relationship exists between total variable costs and the volume of output or rate of activity. Accordingly, total variable costs when plotted against output are represented graphically by a straight line, the slope of which reflects a certain fixed cost per unit of output (see Figure 14). Although the curves representing particular variable costs may exhibit some degree of curvilinearity, the number of different items of cost which together constitute the total variable costs of an

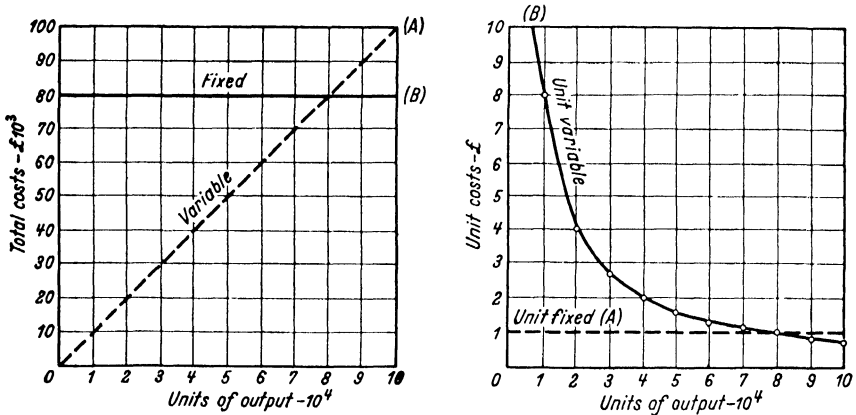


Fig. 14.—Relationship between Costs and Volume of Output.

industrial undertaking tend to counterbalance one another as regards their curvilinearity and so approximate when aggregated to a linear form. Incidentally, it is sometimes erroneously stated that f per cent of total costs are fixed and v per cent are variable, in spite of the fact that f cannot be constant while v varies and still be f per cent of a different total. To make the statement true, the conditions under which it applies must be stated, that is, at a specified percentage of maximum output value. Alternatively, total cost may be stated as varying at x per cent of the rate at which output varies. For example, if total costs vary at 20 per cent of the rate at which output varies, then an increase in output of 10 per cent involves an increase in costs of only 2 per cent.

Sometimes costs are allocated into an additional category of semi-variable expenses, on the basis of their being partly fixed and partly variable. Clearly, as a semi-variable cost is one which by definition is partly fixed and partly variable, the total amount can be allocated accordingly, so that two ultimate divisions only are needed.

In order to decide the extent to which a cost is fixed or variable, an estimate may be made of the relationship between the fixed and variable elements of total cost at maximum continuous output capacity, *i.e.*, at maximum load factor.

$$\begin{aligned}\text{Total costs} &= \text{fixed costs} + \text{variable costs} \\ \text{i.e., } T &= F + V\end{aligned}$$

If, for example, fixed and variable costs are equal when the output is a maximum, *i.e.*, if

$$\begin{aligned}V &= F \text{ when } T = 100, \\ V &= \frac{XF}{100} \text{ where } X \text{ is the percentage load factor ;}\end{aligned}$$

$$T = F + \frac{XF}{100} = F \frac{(100 + X)}{100} ;$$

$$\text{hence } F = \frac{100T}{100 + X} ;$$

$$\text{and } V = \frac{XF}{100} = \frac{XT}{100 + X}$$

From such data, tables may be constructed (see Table 11) showing the percentages of total costs (T) to be allocated to fixed (F) and variable (V) costs at any percentage (X) of maximum output.

TABLE 11

<i>When $F = 50$ per cent at $T = 100$ per cent</i>			
X	T	$F\%$	$V\%$
0	50	100	0
10	55	91	9
20	60	83	17
30	65	77	23
40	70	71	29
50	75	66	34
60	80	63	37
70	85	59	41
80	90	55	45
90	95	53	47
100	100	50	50

If, however, fixed costs are half the amount of variable costs when output is a maximum, *i.e.*, if $V = 2F$ when $T = 100$.

$$V = \frac{2XF}{100}, \text{ where } X \text{ is the percentage load factor ;}$$

$$T = F + \frac{2XF}{100} = F \frac{(100 + 2X)}{100}$$

$$\text{whence } F = \frac{100T}{100 + 2X} ;$$

$$\text{and } V = \frac{2XF}{100} = \frac{2XT}{100 + 2X}$$

A more general formula may be established, in which a constant $K = \frac{V}{F}$ when output is a maximum relates fixed and variable costs.

$$V = \frac{KXF}{100}, \text{ where } X \text{ is the percentage load-factor;}$$

$$\therefore T = F + \frac{KXF}{100} = F \frac{(100 + KX)}{100}$$

$$\therefore \frac{F}{T} = \frac{100}{100 + KX} \quad \dots \dots \dots (1)$$

This general result may be obtained graphically as in Figure 15.

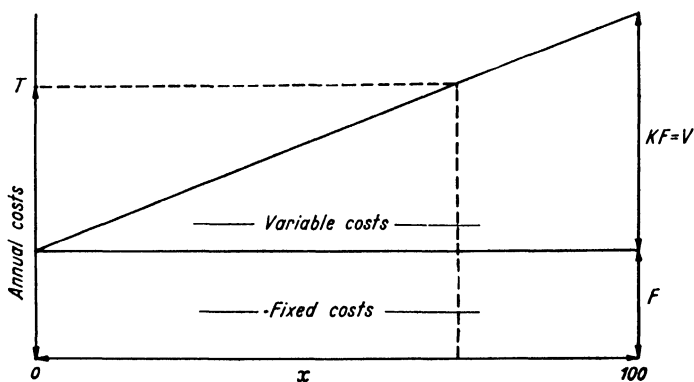


Fig. 15.—Graph Representing the Formula $\frac{F}{T} = \frac{100}{100 + KX}$.

T = total costs for year ;

F = fixed component of total costs ;

X = capacity load factor = $\frac{\text{actual output} \times 100 \text{ per cent}}{\text{max. continuous output}}$

Then $\frac{T - F}{X} = \frac{KF}{100}$, whence $\frac{F}{T} = \frac{100}{100 + KX}$

where $\frac{F}{T}$ represents the proportion of total costs which are fixed for any given output load factor and any relationship K .

As an illustration of the usefulness of presenting profit statements showing a division of costs into their fixed and variable components, consider the following figures :

	Totals	Unit Values
	£	£ s. d.
Sales	250,000	20 - -
Less variable factory costs		
Labour	50,000	
Material	50,000	
Factory overheads	25,000	
	125,000	10 - -
Factory Margin	125,000	10 - -
Less variable selling expenses	25,000	2 - -
Gross margin	100,000	8 - -
Less fixed costs	90,000	7 4 -
Profit	10,000	16 -
Units of output and cost	12,500	19 4 -

Unit cost and profit can readily be calculated from these figures for any variation of output, *e.g.*, if output falls to 10,000 units or increases to 15,000 units, the expected results are :

	Output 10,000 Units £	Output 15,000 Units £
Sales	200,000	300,000
Variable costs	120,000	180,000
Gross Margin	80,000	120,000
Fixed costs	90,000	90,000
(Loss)	10,000	(Profit) 30,000
Unit cost	£21	£18

On the other hand, if increases are anticipated as follows, say

Labour cost 10 per cent

Material cost 20 „

Extra depreciation charges on modernized plant £5,000,

there will be need to revise the figures as below :

	Output 12,500 Units £	Output 15,000 Units £	Unit Values £ s. d.
Sales	250,000	300,000	20 - -
Less variable costs			
Labour . . £55,000		66,000	
Material . . 60,000		72,000	
Overheads . . 25,000	140,000	30,000	168,000
Factory margin . . .	110,000	132,000	8 16 -
Selling Expenses . . .	25,000	30,000	2 - -
Gross margin	85,000	102,000	6 16 -
Less fixed costs . . .	95,000	95,000	6 6 8
(Loss)	10,000	(Profit) 7,000	9 4

It has been assumed that the additional output required can be obtained at existing prices. If this is not the case, economies will be required.

Assuming fixed charges remain unaltered, the factory margin per unit of output provides a current index of the profitability of any increased output which can be secured without adding to selling expenses, that is, through increased sales to existing customers ; whereas the gross margin per unit of output reflects the profitability of any increased sales which require also extra sales expenditure to secure them. Where these marginal values are available for each class of product, there exists a measure of their relative profitability when produced co-operatively, and also a measure of the loss which will ensue if a particular line is taken out of production without being superseded by one having at least an equivalent gross margin per pound of sales ; for it rarely pays to drop a particular line unless it is

superseded by another which re-absorbs manufacturing capacity more advantageously.

Break-Even Costs

The figure of gross margin per cent of sales provides a ready means of determining the break-even point, which may be defined as that volume of sales which just balances costs without any margin of profit or loss. Knowledge of the break-even point is necessary in the search for profits and in the avoidance of losses.

$$\begin{array}{ccccccc} \text{Sales} & = & \text{Fixed costs} & + & \text{Variable costs} & + & \text{Profits} \\ \text{i.e. } S & = & F & + & V & + & P \end{array}$$

If variable costs are x per cent of sales

$$\begin{aligned} S &= F + xS + P \\ \therefore P &= S - F - xS \\ &= S(1 - x) - F. \end{aligned}$$

But as, by definition, there is no profit at break-even point, $P = 0$ at S_{be}

$$\therefore 0 = S_{be}(1 - x) - F$$

$$\begin{aligned} \therefore S_{be} &= \frac{F}{1 - x} = \frac{FS}{S - Sx} = \frac{FS}{S - V} \\ &= \frac{FS}{F + P} \quad (\text{because } S - V = F + P); \\ &= \frac{\text{Fixed costs} \times \text{Sales}}{\text{Fixed cost} + \text{Profit}} = \frac{\text{Fixed costs} \times \text{Sales}}{\text{Gross margin}} \\ \therefore \frac{S_{be}\%}{S} &= \frac{F\%}{F + P} = \frac{F\%}{S - V} = \frac{\text{Fixed costs}}{\text{Gross margin}} \times 100\% \end{aligned}$$

Hence :

$$\text{Break-even sales} = \frac{\text{Fixed cost} \times \text{Sales}}{\text{Gross margin}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

$$\text{Break-even percentage} = \frac{\text{Fixed cost} \times 100}{\text{Gross margin}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

Example

		£		Proof		£
Variable costs	.	100,000	×	80%	=	80,000
Fixed costs	.	200,000	×	100%	=	200,000
Profit	.	50,000	×	0%	=	—
Sales	.	350,000	×	80%	=	280,000

$$\text{Break-even sales} = \frac{200,000 \times 350,000}{250,000} = \text{£}280,000$$

$$\text{Break-even point} = \frac{200,000 \times 100}{250,000} = 80\%$$

The incidence of profit may be investigated from the formula $\frac{S_{be}}{S} = \frac{F}{F + P}$:

$$\therefore S_{be}(F + P) = FS :$$

$$\therefore P = \frac{FS - FS_{be}}{S_{be}} = \frac{F}{S_{be}} (S - S_{be}) :$$

But

$$F = S_{be} (1 - x) ;$$

$$\therefore P = \frac{S_{be} (1 - x) (S - S_{be})}{S_{be}} ; = (1 - x) (S - S_{be}) ;$$

As variable costs are $x\%$ of sales, then

$(1 - x)$ = Fixed cost coefficient, expressing the ratio of fixed costs to " break-even " costs.

Hence, P = Fixed cost coefficient \times Sales in excess of " break-even " sales.

Taking the data shown in the above example :

$$\therefore P = \frac{5}{7} \times \text{£}70,000 = \text{£}50,000, \text{ as shown.}$$

Thus the profit potential varies with the ratio of fixed costs to break-even costs and actual profits depend also on the excess of sales over " break-even " sales.

$$\text{Also profit per cent of sales} = \frac{100P}{S} = \frac{F}{S_{be}} \left(\frac{S - S_{be}}{S} \right) 100 = \left(\frac{F}{S_{be}} - \frac{F}{S} \right) 100$$

which confirms that if the constant $\frac{F}{S_{be}}$ is relatively high the greater is the prospective percentage of profit and the higher the volume of sales the more closely is the percentage $\frac{100F}{S_{be}}$ approached, although it cannot be attained because of the reduction factor $\frac{F}{S}$.

On the other hand, the greater is the risk of loss if break-even output is not achieved. The greater vulnerability of an undertaking with a relatively high fixed cost and its greater theoretical profit potential with increased output are exemplified in Table 12 :

TABLE 12

Profit per cent of Costs at Various Levels of Break-even Output for Certain Ratios of Fixed to Variable Costs at Break-even Point

Output as % of B.E. Level	Ratio of Fixed to Variable Costs at B.E. Point				
	1/3	1/2	1/1	2/1	3/1
	Profit as Percentage of Total Costs				
200	14.3	20.0	33.3	50.0	60.0
180	12.5	17.4	28.6	42.1	50.0
160	10.3	14.3	23.1	33.3	39.1
140	7.7	10.5	16.6	23.5	27.3
120	4.3	5.9	9.1	12.5	14.3
100	0.0	0.0	0.0	0.0	0.0
80	— 5.9	— 7.7	— 11.1	— 14.3	— 15.8
60	— 14.3	— 18.2	— 25.0	— 30.8	— 33.3
40	— 27.3	— 33.3	— 42.8	— 50.0	— 52.9
20	— 50.0	— 57.1	— 66.6	— 72.7	— 75.0
0	— 100.0	— 100.0	— 100.0	— 100.0	— 100.0

It is also interesting to observe the cost variations, with break-even costs as a basis, for various levels of output with certain ratios of fixed to variable cost (see Table 13).

TABLE 13
Cost Variation at Various Levels of Output for Certain Ratios of Fixed to Variable Costs at Break-even Point

Output as % of B.E. Level	Ratio of Fixed to Variable Costs at B.E. Point				
	1/3	1/2	1/1	2/1	3/1
	Total Cost Variation per cent of B.E. Costs				
200	75	67	50	33	25
180	60	53	40	27	20
160	45	40	30	20	15
140	30	27	20	13	10
120	15	13	10	7	5
100	0	0	0	0	0
80	— 15	— 13	— 10	— 7	— 5
60	— 30	— 27	— 20	— 13	— 10
40	— 45	— 40	— 30	— 20	— 15
20	— 60	— 53	— 40	— 27	— 20
0	— 75	— 67	— 50	— 33	— 25

For those who prefer graphs to statistics, the break-even position may be expressed with reference to curves of costs and sales (see Figure 16), or as curves of unit costs and sales (see Figure 17). The data assumed for this purpose are given below with a reference in each case to the plotted points A, B and C in the graph :

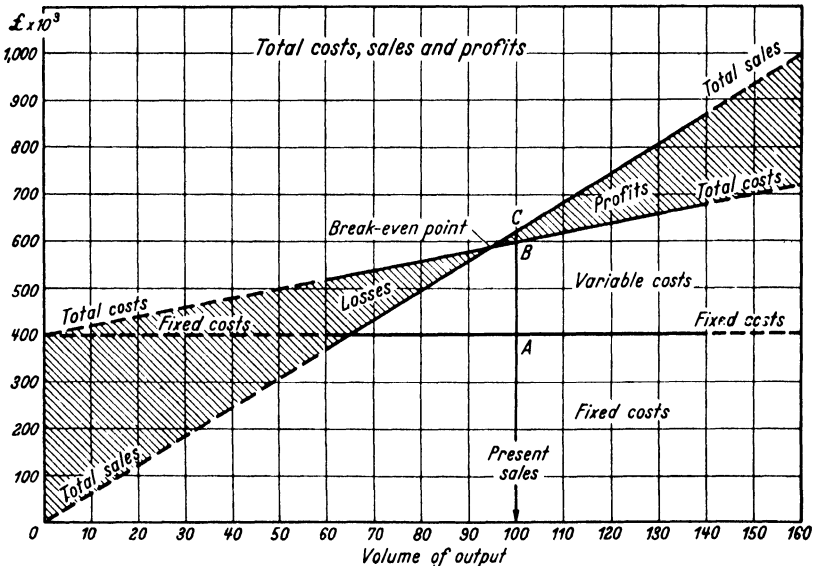


Fig. 16.—Total Costs, Sales and Profits.

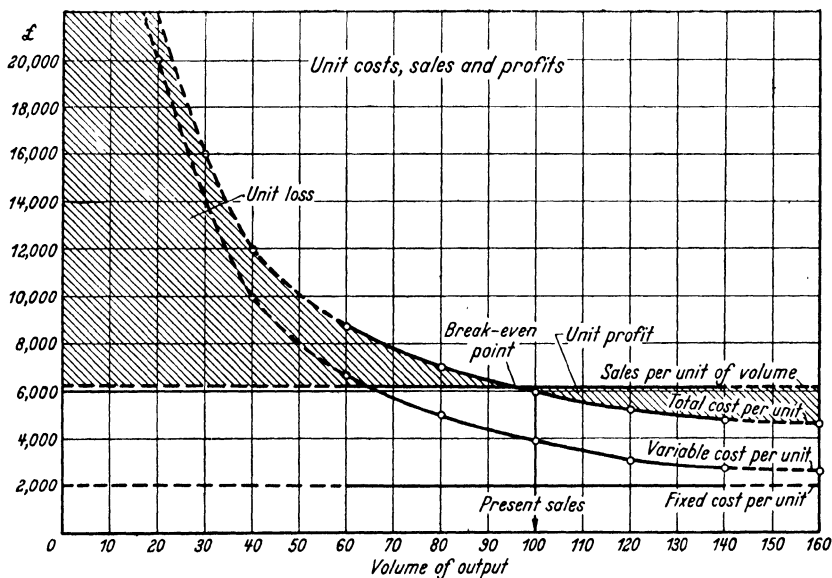


Fig. 17.—Unit Costs, Sales and Profits.

Total fixed costs	£400,000 p.a. (A)
Total variable costs	£200,000 p.a.
Total costs	£600,000 p.a. (B)
Total sales	£620,000 p.a. (C)

On the assumption that the true potential output of the business is not definitely known, the present volume of sales is taken as = 100 and the points A, B and C are plotted accordingly. Fixed costs are represented by a horizontal line and total costs touch this line at its origin. The sales line passes through the origin of the graph and the present sales point "C". The break-even point is shown at the intersection of the total sales line with the total cost line ; it occurs at about 95 per cent volume and requires an annual sales value of approximately £590,000. The curve shows, for example, that if the volume declines to 80 per cent the present profit of £20,000 will become a loss of £64,000, whereas if the volume increases by 20 per cent a profit of £104,000 should ensue. It will be noticed that the various lines are shown dotted outside the limits of 60 to 140 per cent of present volume, for clearly any substantial alteration in volume would probably give rise to another break-even figure, as costs are only considered as being fixed within limits.

A similar break-even point of 95 per cent of present volume is shown in the unit break-even curve. In drawing this unit-graph, the variable cost per unit is ascertained by dividing the total fixed cost by the various output volumes, and to these unit figures is added the fixed cost per unit derived from dividing total variable costs by the relevant output volume, to give the total cost per unit for each output volume. Sales figures per unit of volume are ascertained by dividing the total

sales by the relevant output volume (*i.e.*, $\frac{£620,000}{100} = 6,200$). The following are the plotted points from which the graph is drawn :

Volume %					Variable Unit Cost £
20	.	.	.	.	$\frac{£400,000}{\div 20} = 20,000$
40	.	.	.	.	$\div 40 = 10,000$
60	.	.	.	.	$\div 60 = 6,667$
80	.	.	.	.	$\div 80 = 5,000$
100	.	.	.	.	$\div 100 = 4,000$
120	.	.	.	.	$\div 120 = 3,333$
140	.	.	.	.	$\div 140 = 2,857$
160	.	.	.	.	$\div 160 = 2,500$

Fixed unit cost = $\frac{200,000}{100} = £2,000$

Fixed selling price per unit = $\frac{620,000}{100} = £6,200$

The profitgraph may be used to display the effect of varying outputs on profits. The following figures are derived from the above data as the basis of the profitgraph shown in Figure 18.

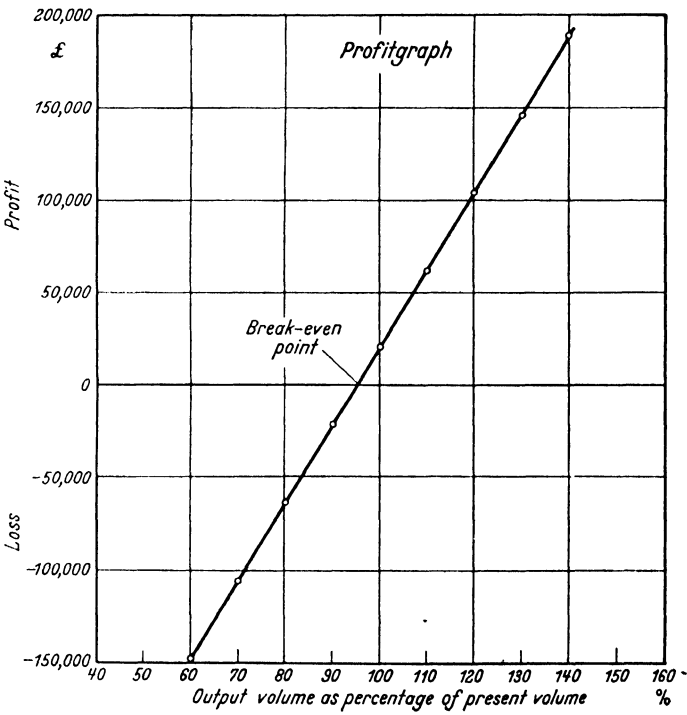


Fig. 18.—Profitgraph.

Output Volume as Percentage of Present Volume	Fixed £	Costs Variable £	Total £	Total Sales £	Profit or Loss £
60	400,000	120,000	520,000	372,000	148,000 Loss
70	400,000	140,000	540,000	434,000	106,000 Loss
80	400,000	160,000	560,000	496,000	64,000 Loss
90	400,000	180,000	580,000	558,000	22,000 Loss
100	400,000	200,000	600,000	620,000	20,000 Profit
110	400,000	220,000	620,000	682,000	62,000 Profit
120	400,000	240,000	640,000	744,000	104,000 Profit
130	400,000	260,000	660,000	806,000	146,000 Profit
140	400,000	280,000	680,000	868,000	188,000 Profit

The solution of problems in respect of break-even data may be approached also by considering the formulæ which represent the curves of total costs and total sales. These curves intercept at the break-even point, as shown on the graph (Figure 16) which relates total costs, sales and profits.

Using the symbols :

q = quantity ;

F = total fixed costs ;

p = unit price ;

v = variable cost per article

the total cost curve may be expressed as

$$y = F + qv,$$

and the total sales curve may be stated as

$$y_1 = qp$$

As y and y_1 intercept at the break-even point

$$pq_{be} = F + vq_{be} ;$$

whence

$$\text{Break-even output quantity} = q_{be} = \frac{F}{p - v} ;$$

$$\text{Unit selling price} = p = \frac{F + vq_{be}}{q_{be}}$$

$$\text{Variable cost per article} = v = \frac{pq_{be} - F}{q_{be}}$$

For example, if fixed costs unabsorbed by existing products are £22,000 and the variable cost per article of a proposed product is 18s., what output is needed to make a profit of £5,000 at a selling price for the new articles of 36s. each ? The answer may be obtained as follows, by considering the required profit as an addition to fixed costs which are unabsorbed by existing output ; i.e.,

$$\begin{aligned} \text{Required output} &= \frac{F}{p - v} \\ &= \frac{22,000 + 5,000}{1.8 - 0.9} = 30,000 \text{ units.} \end{aligned}$$

This result may be proved as follows :

Fixed costs	.	.	.	£ 22,000
Variable costs	.	.	.	27,000 = 30,000 at 18s.
Profit	.	.	.	5,000
Sales	.	.	.	<u>54,000 = 30,000 at 36s.</u>

A further example : What output is required to achieve the same profit of £5,000 if variable costs increase by 10 per cent and it is necessary to reduce selling prices by 20 per cent in order to meet competition ? *i.e.*,

$$\text{Required output} = \frac{22,000 + 5,000}{1.44 - 0.99} = 60,000 \text{ units.}$$

This result may be proved similarly,

		£	
Fixed costs	.	.	22,000
Variable costs	.	.	59,400 = 60,000 at 18s. + 10%
Profit	.	.	5,000
<hr/>			
Sales	.	.	86,400 = 60,000 at 36s. less 20%
<hr/>			

The use of these formulæ extends to assessing the effect, for instance, of incremental output from an additional product, irrespective of products already being produced. Similar formulæ may be derived for dealing directly with more than one additional product, but it is necessary to know the relative proportions in which their outputs are budgeted. For example, to find the outputs to cover fixed costs by products *A* and *B* in respect of which the following data apply.

		<i>Product A</i>	<i>Product B</i>
Variable unit cost	.	$v_1 = 12s.$	$v_2 = 9s.$
Unit price	.	$p_1 = 20s.$	$p_2 = 16s.$
Additional fixed cost	.	£60,000	
Relative outputs	.	$\frac{q_2}{q_1} = 2$	
Total sales at break-even = Fixed costs + Variable costs.			
<i>i.e.</i>		$q_1 p_1 + q_2 p_2 = F + q_1 v_1 + q_2 v_2$	

In order to express $q_2 v_2$ and p_2 in terms of $q_1 v_1$ and p_1 respectively, the figures given may be arranged as follows :

$$\frac{v_2}{v_1} = \frac{9}{12} = \frac{3}{4}; \quad \frac{p_2}{p_1} = \frac{16}{20} = \frac{4}{5}$$

$$\therefore q_1 p_1 + q_2 p_2 = q_1 p_1 + (2q_1 \times \frac{4}{5} p_1) = 2.6 q_1 p_1;$$

$$\text{and} \quad q_1 v_1 + q_2 v_2 = q_1 v_1 + (2q_1 \times \frac{3}{4} v_1) = 2.5 q_1 v_1$$

$$\therefore 2.6 q_1 p_1 = 60,000 + 2.5 q_1 v_1$$

$$\therefore 2.6 q_1 p_1 - 2.5 q_1 v_1 = 60,000$$

$$\therefore q_1 = \frac{60,000}{2.6 p_1 - 2.5 v_1} = \frac{60,000}{(2.6 \times 1.0) - (2.5 \times 0.6)}$$

$$= \frac{60,000}{2.6 - 1.5} = 54,545 \text{ units.}$$

Substituting this result in the formula (*supra*) :

$$q_1 p_1 + q_2 p_2 = 2.6 q_1 p_1$$

$$q_2 = \frac{2.6 q_1 p_1 - q_1 p_1}{p_2} = \frac{1.6 q_1 p_1}{p_2};$$

$$= \frac{1.6 \times 54,545 \times 1.0}{0.8};$$

$$= 109,090 \text{ units.}$$

These results may be confirmed as follows :

	<i>Product A</i>	<i>Product B</i>	<i>Total</i>
Number of units	54,545	109,090	163,635
Selling price	20s.	16s.	—
	£	£	£
Sales	54,545	87,272	141,817
Less variable costs . . .	32,727	49,090	81,817
A (12s.), B (9s.).			
Contributory margins . .	<u>£21,818</u>	<u>£38,182</u>	<u>£60,000</u>

Break-even analysis does not merit unquestioned acceptance. The absence of a true appreciation of the underlying facts may result in misleading conclusions being drawn from the figures because the break-even chart provides an over-simplified analysis of expected profits at various levels of output on the assumption that conditions will remain unchanged. In particular, it should be borne in mind that the total-sales curve assumes products are stabilized and selling prices, as well as the mix of production and sales, are constant despite changes in the activity rate ; whilst the total-cost curve assumes constant material prices, wage rates, expense input-rates, plant capacity and operational efficiency. The inclusion of selling costs also affects the accuracy of the total-cost curve, particularly if, in addition to possible changes in the mix of production, the prospect of variation in the distribution-channel mix must also be considered.

The practical problem in break-even analysis is the difficulty of empirically drawing the cost curve with the realization that as profits are residuals, any imperfections of method are reflected in forecasted profits, which receive their full impact for better or worse. The problem is particularly difficult in the case of the multiple-product plant, which has a variable product-mix and product groups, as well as products, which are subject to relatively wide variation in their contributory margins to common fixed costs. In such cases, indices of output based on standard manufacturing costs may be designed to simplify the problem.

It is important to remember that whereas the break-even chart presents merely a momentary snapshot, the underlying situation is, in fact, to a varying degree, dynamic. Accordingly significant changes in the basis assumed require corresponding amendments to the chart. Special charts may be developed to project future input-costs and sales-price levels on the basis of standard costs, revenues and variances. Indeed, alternative policies may be developed and examined by preparing a family of break-even curves in which separate curves of sales and cost reflect each alternative as to price levels, product-mix, increased volume as the result of proposed capital expenditure, possible economies in manufacture and so on. A statistical rather than a graphical approach is, however, usually preferable in cases where it is necessary to consider many variables, as statistics is, of course, the arithmetic of variables and can readily deal with more of them than can be conveniently incorporated in a chart of this kind.

Consideration should be given to the secular trend of the break-even

point, that is, to annual changes in the break-even point over a series of years. In particular, it should be noted whether the break-even point is increasing as a percentage as well as in value. If it is, the business is certainly becoming more vulnerable to the effects of any trade recession which may arise ; but, on the other hand, it is more capable of making high profits in a good trading period. It is essential that fixed costs should be conditioned by a policy and not left to chance. Their effective control requires the establishment of long-term objectives, the limitation of expenditure to accord with planned objectives and determined sales effort to attain these results. Therefore, whenever basic changes are contemplated, such as additional capital expenditure or a shift in the incidence of product-mix, it is important in the interests of future profitability to assess the effect of the anticipated change on the current break-even point. It is important to realize that when the margin between sales and break-even point is narrowing, a relatively slight recession in volume of sales may have a catastrophic effect on profits.

Marginal Costs

It has already been mentioned that total costs consist of relative fixed and variable costs, which, when translated into terms of cost per unit of output, become variable unit costs and fixed unit costs respectively. The variable cost per unit of output depends upon the total activity of the business, as measured by the percentage volume of utilized capacity or load factor. The fixed cost per unit of output is the cost incurred for each unit of output and is referred to as the marginal cost.

If selling prices are inadequate for the volume of activity, a loss ensues. As the volume of activity increases the loss reduces until that volume is reached which enables a profit to be made. Profit depends largely upon volume of activity. Of course, variations in direct charges, such as material and labour rates and other cost-input factors, affect profits ; but, other things being equal, profit is largely influenced on the cost side by the total volume of activity. For example, consider (A) and also (B) in which the volume of activity is increased by 20 per cent.

	(A)	(B)
	£	£
Total variable costs	100,000	120,000
Total fixed costs	200,000	200,000
Total	300,000	320,000
Selling revenue	300,000	360,000
Profit	Nil	40,000

The profit of £40,000 equals 20 per cent of the total fixed costs and arises solely because of the increase in activity. Thus, if 300,000 units are manufactured in case (A), the total cost per unit is £1 and profit nil ; in case (B) the cost of producing the extra 60,000 units is 60,000 × marginal cost of 6s. 8d. per unit, or £20,000, as an addition to variable costs.

Marginal Income Ratio.—The following comparative figures illustrate the presentation of accounting information on marginal principles, disclosing in addition to the profit/sales ratio the marginal income ratio as a measure of manufacturing cost efficiency.

Example 1

<i>Conventional Method</i>		<i>Marginal Method</i>	
	£		£
Sales	100,000	Sales	100,000
Material	30,000	Material	30,000
Labour	20,000	Labour	20,000
Overheads	30,000	Variable o'heads	10,000
	<hr/> 80,000		<hr/> 60,000
Profit.	<hr/> 20,000	Marginal income	40,000
		Fixed overheads	20,000
			<hr/> 20,000
		Profit.	<hr/> 20,000

Profit/Sales Ratio 20 per cent

M.I. Ratio 40 per cent

Example 2

Output Decreased by 20 per cent, Cost Efficiency Static

	£		£
Sales	80,000	Sales	80,000
Material	24,000	Material	24,000
Labour	16,000	Labour	16,000
Overheads	28,000	Variable o'heads	8,000
	<hr/> 68,000		<hr/> 48,000
Profit.	<hr/> 12,000	Marginal income	32,000
		Fixed overheads	20,000
			<hr/> 12,000
		Profit.	<hr/> 12,000

Profit/Sales Ratio 15 per cent

M.I. Ratio 40 per cent

In multi-product firms, the calculated costs per unit of output of each product will vary according to the method adopted for allocating fixed costs, whether by reference to labour cost, material cost, prime cost, number of units, or otherwise. Hence, any allocation of fixed costs in multi-product firms is arbitrary and can be regarded only as tentative. Unit costs will vary also because of the incidence of marginal costs as the mix of products alters from time to time. Multi-product manufacture is justified when the co-operative costs of manufacture are appreciably less than the aggregate cost which would be incurred in the independent manufacture of each class of product. Accordingly, the fixed costs of multi-product firms may be tested by comparing their total with the hypothetical fixed costs which would be incurred under independent conditions of manufacture by the most economical methods available.

Marginal cost is a definite item in price-fixing, for it would clearly be uneconomical to offer products for sale at less than their marginal cost. It pays to maintain in production a product which provides

more revenue than its marginal cost, unless the sale of some other product returning a higher benefit is possible in its place. It hardly ever pays to cease the production of a product which is helping towards meeting common fixed costs, although some firms, to their cost, fail to realize this soon enough. The contributory margin approach does not disregard common fixed costs. On the contrary, it emphasizes the contribution of each segment of business towards these costs, facilitates managerial decisions required for meeting competition by segregating costs which can be modified by a decision regarding a particular segment of cost from those not so affected and avoids controversy regarding the accuracy of fixed cost allocations. In the search for profits there is need to get as high a contribution as possible towards common fixed costs, and it is in this direction that the sales manager exercises his skill. Clearly, there is no virtue in selling products at a little more than their marginal cost if this results in spoiling the market or inducing incremental costs of a fixed nature which are unlikely to be remunerative.

It is not always easy to assess the relative advantages to the manufacturer of one product compared with another without having regard to the physical content of their requirements. In general, provided demand is satisfactory, the rate of earning marginal income relative to conversion costs is more important than the margin itself. Assume, for example :

		<i>Product A</i>	<i>Product B</i>
		£	£
Selling price		1,000	1,000
Direct material	100	200	
Direct labour	200	150	
Variable overheads	200	150	500
Marginal income to cover fixed overheads and profit.		500	500

Although the marginal income is the same, the rate of earning marginal income in relation to conversion costs is greater with product B in manufacture. The rates are $\frac{500}{400} \times 100$ per cent = 125 per cent for A, and $\frac{500}{300} \times 100$ per cent = 166 $\frac{2}{3}$ per cent for B.

A useful series of statistics are those which show the marginal income per man-hour for each job. For example :

Selling price	£120
Marginal cost	60
Marginal income	60
Man-hours	200

These figures show a marginal income per man-hour of $\frac{£60}{200} = 6s.$,

which may be compared with the factory average of, say, 5s. Continuous records may be maintained as a guide showing the average marginal-income contribution per man-hour of jobs included in the total value of quotations outstanding, orders not commenced, orders in progress and sales invoiced, for each product-group and overall. The average fixed overhead costs per man-hour for the company can be calculated at various levels of output, in order that the profit or loss at each level may be ascertained for each product-group by comparison with the marginal income per man-hour.

For example, if fixed overhead costs are £100,000 per annum and the number of man-hours employed at 60 per cent of maximum volume is 200,000, then the average cost per man-hour of fixed overheads at this volume is 10s. If selling prices show a marginal income of 12s. 6d. per man-hour, profit is 2s. 6d. per man-hour, assuming all variable costs are kept under control at a constant rate per man-hour. If output volume is increased to 80 per cent with existing prices, the fixed cost component is reduced to $\frac{60}{80} \times 10\text{s.} = 7\text{s. } 6\text{d.}$ per man-hour and future profits will be 5s. per man-hour for one-third more man-hours (i.e., $\frac{20}{60} \times 100$ per cent), or the equivalent of 5s. plus 33 $\frac{1}{3}$ per cent per existing man-hour, or 6s. 8d. per existing man-hour. On the other hand, if the increased volume of sales requires a price reduction of 2s. 6d. per man-hour to face increased competition, prospective profits per existing man-hour may be set out as follows :

<i>Volume Achieved</i>	<i>Fixed Cost per Man-hour</i>	<i>Marginal Income</i>	<i>Profit per Man-hour</i>	<i>Increased Volume</i>	<i>Equivalent Profit per Existing Man-hour</i>
%	s. d.	s. d.	s. d.	%	s. d.
60	10 —	10 —	Nil	Nil	Nil
70	8 7	10 —	1 5	16 $\frac{2}{3}$	1 8
80	7 6	10 —	2 6	33 $\frac{1}{3}$	3 4
90	6 8	10 —	3 4	50	5 —
100	6 —	10 —	4 —	66 $\frac{2}{3}$	6 8

If, however, it is considered that a minimum profit of 1s. per man-hour is possible at 60 per cent output volume, prospective profits are :

<i>Volume Achieved</i>	<i>Fixed Cost per Man-hour</i>	<i>Marginal Income</i>	<i>Profit per Man-hour</i>	<i>Increased Volume</i>	<i>Equivalent Profit per Existing Man-hour</i>
%	s. d.	s. d.	s. d.	%	s. d.
60	10 —	11 —	1 —	Nil	1 —
70	8 7	11 —	2 5	16 $\frac{2}{3}$	2 10
80	7 6	11 —	3 6	33 $\frac{1}{3}$	4 8
90	6 8	11 —	4 4	50	6 6
100	6 —	11 —	5 —	66 $\frac{2}{3}$	8 4

Of course, each case requires consideration and treatment according to the facts and surrounding circumstances. Clearly, the conventional profit and loss account does not provide a sufficient analysis of data on which to form a satisfactory judgment.

Marketing Costs

Generally, the problem of reducing unit marketing costs has received little consideration in comparison with the attention which has been given to the reduction of production costs, possibly due to the fact that the mechanical nature of production permits of greater savings with relatively less effort, for in distribution there is no automatic way of increasing consumer demand. Marketing costs consist of distribution costs and selling expenses. Distribution costs are necessarily incurred in connection with completing sales, whereas selling costs, such as advertising expense, are incurred to obtain sales. Marketing problems, being usually less tangible than those of production, may easily be the source of the hidden wastage.

As the functions of the sales and production departments are complementary, the ascendancy of one over the other is usually reflected in reduced profits. Interference by sales executives with manufacturing programmes invariably results in dislocating production, whilst failure by the factory to meet delivery dates or to satisfy the real needs of customers is equally uneconomical. In many cases, however, satisfactory customer relationships may be maintained and interruptions of production avoided by making available a limited capacity for urgent orders when establishing production programmes. Close co-operation between production and distribution departments also avoids unrewarding investment in working capital by ensuring that finished stocks are no more than adequate in quantity and variety to act as a buffer against inequalities between production and sales.

Marketing costs are justifiable to the extent that they serve to reduce overall costs and satisfy the reasonable requirements of consumers by making goods available in the quantities needed at the right time and place, in a suitable condition with a reasonable choice of quality, supported, if necessary, by advice on use and after-sales service. As increasing the volume of turnover is usually the best way towards reducing unit costs of both production and marketing, the manufacturer should not only be interested in increasing the operating efficiency of his plant, but also in getting his output into the hands of consumers.

The analysis of sales income and costs by products, product groups, sales territories, sales outlets, or other cost segments makes for a better appreciation of the contributory elements of net profit. Periodical reports of this kind enable management to take effective action when unfavourable trends develop, or to maximize the profit potentials of favourable situations. Prospects of improvement may be disclosed which otherwise may remain unobserved. Alternative courses of action may be objectively assessed and ensuing results realistically evaluated. The constant search for progress requires that managements should make comparisons of expected costs under alternative methods, and for this purpose develop standards of comparison. The assumption should always be that unit costs are too high.

In order to maintain a satisfactory volume of sales at reasonable cost, it may be necessary to incur a higher initial expenditure by

way of advertising in order to create the necessary goodwill, to which end strategic objectives may be more rewarding than tactical coverage. The principal economic justification for advertising is that when supported by a satisfactory product it leads to an ultimate reduction in cost to consumers by stimulating and maintaining a much greater demand than would otherwise prevail. Advertising, in so far as it merely maintains demand, enables production to be sustained and, to the extent that it increases demand, enables manufacturing costs per unit of output to be reduced, so long as the increased demand can be met from existing fixed resources or from additional resources with a less than proportionate increase in fixed costs. The problem here is to decide whether or not to incur any sizeable advertising expenses at all, particularly in the expensive field of consumer advertising. This, however, is not to argue against "duplicated circulation". For assuming the chance of a particular person reading a certain advertisement in any two specified journals is in each case 1 in 5, the chance of his seeing it in both journals is only 1 in 25, involving little wastage of the advertising allocation. If there are three journals and the chance factor remains the same, the chance of the advertisement being seen by the same person in all three journals is only 1 in 125, whilst the chance of its being seen by the same person at least twice is almost 1 in 10 (actually 13 in 125), whereas the chance of the advertisement being seen at least once is almost 1 in 2 (actually 61 in 125). As the choice of advertising methods and media and the execution of advertising plans require expert guidance, particularly so in view of the possible heavy outlay which may be involved, it is usually more economical in the long run to delegate this important activity to advertising specialists able to bring a wide experience to this work. There are, of course, many other methods of promoting sales apart from advertising, through personal representatives, mailing, trade fairs or possibly reciprocal trading. At all times, however, the test to apply is cost per unit of sale and relative stability of demand. In appropriate cases, it is important not to overlook the fact that changing the sales emphasis of one product may affect the sales volume of other products and have corresponding repercussions on manufacturing costs by changing the product mix.

Marketing policy is largely determined by the source of demand for the product, whether specialized or general, and also by the nature of the product itself. A manufacturer may minimize his marketing risks and costs by making use of the established channels of a smoothly working distribution system, and by creating conditions in which distributors will stock and continue to stock his products. For efficient manufacturers are not necessarily successful distributors, and usually the services of influential middlemen with the right contacts cannot safely be ignored. In particular, bulk orders from wholesalers are often more economical than numerous small orders from retailers. However, distributors' margins must be realistic. Fixed margins are illogical unless similar conditions prevail and it is in the common interest of manufacturers and middlemen to fix attractive prices. It is usually advisable for the manufacturer who deals through inter-

mediaries to protect his position by tracing the passage of his products through their journey to the consumer. This may enable him to assess the effectiveness of distribution of his goods in comparison with his competitors and, by satisfying himself of the continuing suitability of his product to the consumer, to avoid losses which could otherwise arise. If the manufacturer has direct-to-consumer facilities and trades also through wholesalers, the presence of alternative methods of distribution may tend to ensure that both methods will be operated economically.

The closer the contact between manufacturer and user, or consumer, the greater opportunity has the manufacturer of controlling the volume of sales, provided, of course, that he has the necessary financial resources to build up a direct sales organization, the cost of which increases as the manufacturer comes into closer relationship with consumers. In the interests of economy it is important in operating a direct-to-consumer organization to evaluate its effectiveness from time to time and introduce improvements for more economical working. The expense of increasing the quality of "field" supervision often repays ample dividends, for it is only as the result of continuing activity that results are likely to accrue. Territorial sales arrangements should aim at maximizing the selling time of representatives. As salesmen generally display personal selling preferences, and often meet with waning interest by buyers after a short period, the allocation of too many lines should be avoided in order to ensure that each product is adequately represented. Incidentally, the under-worked territory tends to produce the highest income to individual salesmen, yet fails to maximize sales, whereas the overworked area cannot yield a satisfactory income for each salesman concerned or realize economical distribution costs. In the former case, mediocre salesmen are usually overpaid and remain with the firm, whereas in the latter case, first-class men leave for more remunerative employment elsewhere.

If the demand for a product proves disappointing, then suggestions may be made to cease its production. This provides a solution only if the increased production and sale of other products can replace it with an equal contributory margin; otherwise the proportion of fixed costs which the product supports will reduce potential profits from other sales. On the other hand, continued production may sterilize working capital and impair the more economical manufacture of other products. Some sales accounts may appear unprofitable because too much selling expense is needed in relation to the sales volume which they absorb. Generally, in so far as the variable cost of distribution exceeds the distribution margin provided in the price of a product, it may be considered that the account concerned is unprofitable, although the incidence of eliminated accounts on the fixed costs of production and distribution should never be overlooked, especially if regarded as prestige accounts which carry advertising goodwill. Moreover, special consideration should be given to products which aid the profitable sale of a product-range of which they form part, yet of themselves make no direct contribution to profits. As a first approach to the problem, variable costs of sales may be analysed on the following lines and the results applied in assessing whether or not a low-volume account is

apparently justified, either through existing or alternative channels of distribution.

<i>Variable Cost</i>	<i>Unit</i>	<i>Unit Cost</i> <i>s. d.</i>
Order office . . .	Number of orders . . .	6
Representation . . .	Number of calls . . .	2 6
Delivery . . .	Number of deliveries . . .	1 6

These unit costs, applied to a low-volume account over a period, may be compared with the distribution margin provided by the selling price.

	<i>Number of Units</i>	<i>Unit Cost</i> <i>s. d.</i>	<i>Total Variable Cost</i> <i>£ s. d.</i>
Order office costs . . .	10	6	5 -
Representation costs , . .	15	2 6	1 17 6
Delivery costs . . .	12	1 6	18 -
			<hr/> 3 - 6
Value of orders £20 0 0			
Distribution margin 10% . . .			<hr/> 2 - -
Apparent deficiency . . .			<hr/> 1 - 6

Of course, other units may be used as may be appropriate, such as number of invoices and delivery weights.

Instead of dealing initially with each individual account, a general approach may be made by analysing sales somewhat on the following lines :

<i>Volume of Annual Sales</i> <i>£</i>	<i>Per cent of Total Customers</i> <i>%</i>	<i>Per cent of Total Sales</i> <i>%</i>
Up to £25	10	0·5
£26-£50	18	2·0
£51-£75	21	4·5
£76-£100	16	4·5
£101-£250	15	9·2
£251-£500	9	10·8
£501-£1,000	6	15·3
£1,001-£5,000	5	53·2
	<hr/> 100	<hr/> 100

Closely related to the problem of unprofitable accounts is the wider question of unprofitable areas. The case may well be that the volume of sales, rather than being reduced through discarding low-volume customers or unprofitable areas, may be increased by adopting alternative channels of distribution. For example, wholesale instead of retail distribution may be arranged for certain areas or classes of customers with a wider and more intensive coverage of smaller accounts. Another approach to the problem of reducing distribution costs is by making periodical work-studies of representation arrangements which reveal for each area, class of customer, or product, the extent to which time is actually spent with customers, as compared with such activities as

travelling, waiting, paper-work and prospecting. Worth-while economies may result and the time of representatives made more rewarding by re-arranging areas, re-routing journeys, reducing routines and training representatives. Periodical investigations should also be made to the same end into other related aspects of distribution, such as credit control, packaging, economical ordering and delivery quantities, and the like. Under no circumstances should a product or territory which fails to yield a satisfactory margin be summarily discarded, but every endeavour should be made to ensure that effective action is taken towards making the product or area yield a more satisfactory contribution.

CHAPTER 10

STANDARD COSTING AND BUDGETARY CONTROL

Introduction

STANDARD costing applied to mixed production requires only a fraction of the detailed costing work required by a historical costing system, because each manufactured part or article is costed once only under standard conditions no matter how often its production is repeated provided basic conditions which are assumed remain unchanged.

The only continuous costing required is to reveal the different cost variances which occur between standard and actual performance. For example, material cost variances may be due to alterations in specifications, usage, scrap or prices ; labour cost variances may arise from changes in rates of pay, labour efficiency, production methods or idle time in working periods ; whilst standard overheads may vary according to departmental performance, volume of activity, mix of products or changes in cost-price levels. The costing of variances has the advantage of enabling departmental efficiencies to be assessed and departures from anticipated results measured. Another important advantage is that differences between actual and standard costs are ascertained and located as they arise, in time, therefore, for corrective action to be taken.

The absence of repetitive costing makes for substantial economies in clerical labour and paper-work, whilst the analysis of variances provides vital data for effective managerial action. Standards adopted provide a constant and unchanging unit of measurement and may remain in use from year to year without revision, except when changes are made in product design, production methods or other basic factors. Even the effect of basic changes made can be assessed in terms of previous standards and, if need be, accounted for by maintaining appropriate cost accounts. Standard costing is equally applicable to mass-production and process industries, although the savings of paper-work in these cases are relatively less ; but the other advantages of standard costing remain.

Standard costing uses the principle of exceptions in assuming that only those performances which fail to achieve the agreed standard need executive attention. Thus the time of executives is immediately directed into profitable channels, instead of being expended in endeavouring to analyse the incoherent mass of data otherwise available. By focusing the attention of management on to significant differences in cost, their causes are more likely to be eradicated. For whereas it is relatively simple to determine objectives, it is difficult, particularly in large undertakings, to assess achievements without the aid of standard costings or some form of statistical control.

Various other administrative advantages are also secured from standard costing. For example, it is possible to price stocks-in-hand and work-in-progress long before the financial accounts are ready for closing. The ready assessment of such periodical valuations enables reliable monthly or other periodical operating cost statements and trading accounts to be prepared. Another important feature is that standard costing facilitates the preparation of projected estimates of cost by indicating trends in various cost components, an advantage which is particularly useful when considering problems of plant replacements or factory extensions and in price-fixing against long-term deliveries. Not only does standard costing enable the profitability of various products to be confidently determined, but its use in quickly revealing the effect of changing conditions avoids expensive delays when adjustments to sales prices become necessary.

On the other hand, although the introduction of standard costing keys up related technical and production departments from which data are required as the basis of the standard costing system or to feed it with current information, considerable effort is generally required to establish the system, not because of any inherent difficulty in the principles or application of standard costing, but merely because the information required from time-study methods, engineering and other technical departments is so often found to be incomplete, incorrect or untidy. For example, inadequate production layouts, incomplete or out-moded time-studies, or inadequate coding systems for materials and components may reveal organizational deficiencies, the clearance of which makes a definite contribution to increased efficiency. Many inefficiencies are usually brought into the light of day in the course of installing a system of standard costing which would otherwise have remained as unobserved sources of loss.

Preferably the system should be designed to ensure complete integration of cost and financial accounts, thus reconciling profits or losses disclosed on various products or activities with the aggregate result shown by the profit and loss account and to form part of a fully-integrated system of factory control with time-study, process-planning, production and material control systems, thus providing a framework of integral control.

To summarize, the object of standard costing is to produce reliable costs with a minimum of paper-work and effort by making use of the principle of exceptions, in order to improve efficiency and profitability in various ways : by disclosing the existence of preventable inefficiencies or wastages in time for corrective action to be taken; by furnishing information to the sales department to enable that combination of sales volume and price to be obtained which will result in securing satisfactory profits ; by making available standards of reference whereby progress may be measured on a comparable basis and upon which decisions of a major character, such as the timing and extent of capital investment programmes, can be taken, and by providing close estimates of the stock and work-in-progress position to permit the ready preparation of monthly profit and loss statements for each product group as an aid to management.

Standards

It does not matter from a purely accounting point of view at what levels the standards are fixed, provided they are consistent with one another. By analogy, it does not matter whether a thing is measured in feet or yards and priced in shillings or pence, so long as the measure used is consistent. To take the analogy further, it would not matter much if the yard were slightly shorter or longer than it actually is or even if there were ten pence to the shilling, provided the new measure were universally adopted. The important point is that standards adopted must be consistent with one another and also consistent in their application. If the standards are not relatively correct, the result will be to distort the standard costs in their relationship with one another.

There is a fairly wide choice in the different standards or levels of cost which may be used. A basic standard may be established for use unaltered over a long period of time or a current standard may be established for use over a short period of time and related to current conditions. The adoption of a basic standard permits the ready ascertainment of the secular trend of cost variances, but requires the amendment of detailed costings as significant changes are made in methods of working. The significance of improved methods are disclosed in relation to the basic standards. With a current standard, however, the effect of secular changes is masked and unnecessary work is often caused by the periodical review of all standards, whether significant changes have occurred or otherwise. On the other hand, the percentage variances shown for current standards are usually less than those shown by basic standards. Accordingly, greater care is needed in allocating cost variances from basic standards than those ascertained from current standards. Whether the standard adopted is basic or current, further choice may be exercised by adopting a normal, expected or ideal standard. The normal standard refers to the average standard which could be attained over a period preferably long enough to cover one trade cycle ; an expected standard is one which could be attained over a future specified budget period ; whilst an ideal standard is one which could be attained under the most favourable conditions possible.

Physical standards may be conveniently based on the information given on job layout forms prepared by production and time-study engineers. These specifications indicate the raw material requirements for each part as well as the time allowances for each class of labour concerned, together with the cost centres, indicated by the machine and production sections, appropriate to manufacture. It is often convenient to group labour requirements according to the class of labour required ; for example, highly-skilled, skilled, semi-skilled and unskilled, and, in addition, to indicate the precise nature and quantity of raw material requirements and to classify them according to their general nature, such as brass strip, brass rod, aluminium, etc. In fixing material standards, consideration should be given to allowances made in engineering layouts for wastage, so that only unavoidable wastages are shown in standard quantity requirements. Excess

wastages may then be collated as overhead expenses under appropriate cost codes.

There is need to distinguish between raw materials which are precisely identifiable with the product by being counted, weighed or measured in their allocation to its production and process materials which are generally used in the course of operations such as in plating, soldering, painting and welding. Whereas productive raw materials can be allocated precisely to products, there is need to deal with process materials as variable overheads appropriate to the cost centres which use them and their usage should be checked periodically by comparing standard requirements with actual stores issues.

Financial standards, expressed as unit rates for each labour class or material code, are applied to the corresponding physical standards in order to give standard prime costs for the conditions postulated. Care should be exercised to ensure that financial standards are all made in accordance with the same general price level. In order to simplify the fixing of standard prices for raw materials and bought-out components, a comprehensive catalogue should be prepared of all materials used, in such a way that subsequent purchases of additional sizes or sub-classes of material fit into the general scheme and their standard prices can be fixed in accordance with the standard price level. Such cataloguing is invaluable also for good storekeeping and the use of codes for material descriptions simplifies routine and the extraction of statistics.

In manufacturing industry, special tools, dies, jigs, fixtures and patterns have to be made in respect of new products, and in some cases duplicate sets of tools may be considered necessary. A usual and desirable practice is to make a complete specification with estimated costs of all tools required for the manufacture of each particular end-product, and, as a guide, to reduce the costs to unit form for each manufactured part in accordance with the estimated output from each tool. Where tooling costs are relatively slight in comparison with product costs, the cost of the toolroom may be regarded as a manufacturing overhead and treated accordingly in the accounts. Where tooling costs are relatively high and are not covered by a direct charge to the customer, the amount may be written-off through a tool-spread account which may be on the basis of standard costs as output is obtained over the life of the tool and charged to the cost of sales account as a separate item. Special initial expenditure of this nature is usually segregated from normal production expenses in order to avoid obscuring the amount and trend of normal expenditure.

After the standard cost of labour and material has been ascertained for each job, an allowance for standard overheads is usually added. The amount included for this purpose may be either a separate composite figure for each production centre to include variable overheads and a proportion of fixed overheads, or a figure to cover standard variable overheads only. In view of the impossibility, already discussed, of making accurate allocations of fixed common overhead expenses and the simplicity of including only an allowance for standard variable overheads expressed at a rate per standard-hour for each class of labour or

cost centre, it is considered that the most effective system of standard costs for use in manufacturing industry is one developed on this basis.

In formulating standard overheads, it is clearly impracticable to define the physical content of each and every detailed item of overhead expense and to price each of these at a separate standard cost per unit. However, overhead expense accounts may be segregated according to their main incidence—occupancy, plant, man-power establishment, material usage and financial charges, with suitable groupings in each case, in order to determine cost standards relative to the physical content of each group of accounts on a two-part tariff basis having a fixed component and a variable component. Basic or current standards may be established from the comparative analysis of costs for previous years after all avoidable excesses have been eliminated. For example, standard occupancy costs may be established as a fixed charge of “ x ” shillings per 1,000 sq. ft. of floor area, with a variable charge of “ y ” shillings per 1,000 productive man-hours; fixed plant costs may be established as “ x ” shillings per £1,000 of capital expenditure (equated to a standard price level), with a variable charge of “ y ” shillings per machine-hour; man-power establishments may be determined on the basis of a standard set-up related to directly productive man-hours at standard rates of pay, whilst financial charges may be related to standing loan commitments and working capital requirements for the level of activity adopted as standard. Although the establishment of overhead standards may appear to be a somewhat tedious process, nevertheless the effort is usually rewarding, as it is only by making a thorough examination of the organizational set-up and expenses of each department that economical working can be assured for competitive manufacture.

When the standard costs of manufacturing the various piece-parts have been ascertained, it is often necessary in manufacturing industry to build up these costs into the costs of components, sub-assemblies, assemblies and completed products or equipments. For this purpose engineering stock-lists as issued for the guidance of production shops are relevant. Incidentally, it is usually economical to design job layout forms and engineering stock-lists so that standard costs can be extended thereon without the use of additional paper-work. Also, when provision is made for the compilation of progressive as well as total standard costs, valuable time is saved at stock-taking in ascertaining the standard cost of work-in-progress. Time is also saved and the chance of error is reduced when a list of components which incorporate a particular piece-part is made on the reverse side of the relevant standard cost sheet or job layout form, in order that all consequential changes may be made if the standard cost is amended.

In order to express standard job costs in terms of actual costs, it is necessary to ascertain variance percentages for each main component of cost. Accordingly, the need arises to make periodical and accumulative comparisons between actual and standard costs. Accuracy requires a completely integrated system of financial and cost accounts, so that the cost accounts disclose complete details of all amounts included under each heading in the financial accounts and may be

re-arranged to reveal their incidence. The basis of a fully integrated accounting system is a uniform and comprehensive system of account codes indicating the financial account, cost account and cost centre of each item of expense and revenue. In addition, each item of expense should also carry a reference number, such as stores code, machine code or check number, in order that detailed analyses of financial and cost accounts may be readily ascertained and justified.

As one of the principal objects of a costing system is to avoid unnecessary expenditure, control over expenditure is preferably exercised at source through the medium of works orders, without the authority of which no work of any kind should be undertaken. The use of pre-printed job instructions is economical where the repetition of similar jobs permits permanent stencils to be set up. An important practical advantage of issuing standard pre-printed instructions is that, unless specific authority is given in advance, production can proceed only in accordance with the standard method designated by production engineers as being the most economical and practical for the production resources concerned. Effective control over the issue of raw material is secured when pre-prepared requisitions, detailing the standard material specifications and quantities, are issued to the shops with standard operational job cards. If it is inconvenient to manufacture in accordance with the official job layout, authority to do the work in some other way should be obtained through the medium of a factory transfer order, in order that any excess costs may be charged as overhead expenses to an excess production cost account. When material is wasted, the issue of excess material requisitions of distinctive colour should be authorized by the foreman concerned with a written explanation for the loss, before the extra material is issued from stores. Thus, the foreman does not wait for the cost office to report wastages to him, but he reports the waste himself by authorizing the requisition as soon as the loss occurs, with the knowledge that he is, in fact, reporting to the management on the inefficiencies of his own department. Even under the best conditions, material, work-in-progress and finished stock may be damaged and consequently need rectifying or even scrapping. The loss may arise from faulty material caused by unsatisfactory supplies or by inefficient storekeeping, poor workmanship or defective plant. Faulty supplies, apart from requiring an approach to suppliers for the value of unusable materials, may indicate the need for improved inspection of incoming supplies. When the decision has been taken to scrap or rectify the parts which are faulty, either a scrap note or a rectification note should authorize the necessary action to be taken. The fact that variances from agreed standards have whenever possible to be authorized by the foreman, who must give reasons for them, provides a ready means of controlling performance, subject to the important proviso that the foreman must be efficient if benefit is to be obtained.

Accounting for Variances

Standard costs are sometimes incorporated in subsidiary records attached to the financial accounts or included merely as statistical

memoranda, with the corresponding disadvantage of incompleteness. In other cases, where complete standard cost accounts are maintained so that cost variances are derived only at the close of each accounting period, the usefulness of the results as a tool of management is limited because of the delay in disclosing variances. The preferable method is to ascertain variances by appropriately scheduling standard and actual costs prior to their entry in the accounts, in order that any remedial action indicated may be taken without delay.

Cost variances may be ascertained for each of the main components of total cost, labour, materials and overheads, by comparing their actual cost with their standard cost. Each cost, actual and standard, has a physical and a financial aspect. Accordingly, cost variances may be expressed as the sum of a usage variance and a price variance, viz :

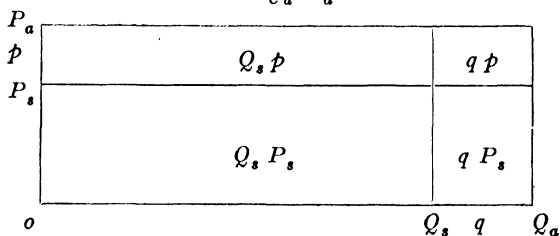
$$\begin{aligned}
 \text{Total variance of each component of cost} &= \text{Actual quantity} \times \text{Actual price} - \text{Standard quantity} \times \text{Standard price} \\
 &= Q_a P_a - Q_s P_s \\
 &= Q_a P_a - Q_a P_s + Q_a P_s - Q_s P_s \\
 &= Q_a (P_a - P_s) + P_s (Q_a - Q_s) \\
 &= \text{Actual quantity} \times \text{Price difference} + \text{Standard price} \times \text{Quantity difference} \\
 &= \text{Price variance} + \text{Usage variance}
 \end{aligned}$$

Example

		Quantity	Price	Product
Actual	.	1,200	£1.3	1,560
Standard	.	1,000	£1.0	1,000
Total Variance				<u>£560</u>

$$\begin{aligned}
 \text{Price variance} &= \text{Price difference} \times \text{Actual quantity} = £0.3 \times 1,200 = 360 \\
 \text{Usage variance} &= \text{Quantity difference} \times \text{Standard price} = 200 \times £1.0 = 200 \\
 \text{Total Variance} &= \underline{\underline{£560}}
 \end{aligned}$$

Alternatively, the variance formula may be expressed graphically as follows ; where the total area = $Q_a P_a$ = total actual cost.

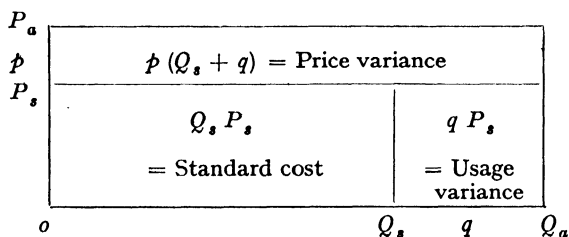


$$\begin{aligned}
 \text{For } Q_a P_a &= (Q_s + q) (P_s + p) \\
 &= Q_s P_s + Q_s p + q P_s + q p.
 \end{aligned}$$

As the right-hand side of the expression equals

$$\begin{aligned}
 &Q_s P_s + p (Q_s + q) + q P_s \\
 &= Q_s P_s + p Q_a + q P_s ;
 \end{aligned}$$

$$\text{Actual cost} = \text{Standard cost} + \text{Price variance} + \text{Usage variance}$$



Material cost variance is the difference between the standard cost of material specified and the actual cost of material used and its components are a material price variance and a material usage variance. Material price variances may be ascertained by pricing suppliers' invoices at standard cost and summarizing the results in order to obtain the difference between actual and standard costs for each material class. Material usage variances may be found by collating the standard cost of the differences between the standard quantity of material specified and the actual quantity used in each case.

Wages cost variance is the difference between the standard wages specified and the actual wages paid and is the sum of the wages rate variance and the labour efficiency variance. Wages rate variance may be ascertained by comparing actual rates of wages paid for each labour class with the corresponding standard rates specified. Labour efficiency or usage variance reflects the standard cost of the difference between the standard labour hours specified and the actual labour hours expended.

The overhead variance is the difference between the standard overhead specified and the actual overhead incurred.

Upon the introduction of a system of standard costing, a budget should be prepared of standard overheads, with each item of expense taken at the level of prices adopted as standard. Separate budgets should be established of fixed and variable overheads, particularly if a contributory margin approach is taken towards fixed overheads as being unallocable to specific jobs. If the standard cost of variable overheads is budgeted on the basis of a standard output, the resulting fixed cost per unit of output specifies the standard overhead rate per standard man-hour of production or the standard overhead cost as a percentage of standard direct-labour cost. This rate or percentage when applied to current data regarding standard man-hours produced or standard labour costs incurred gives the total of variable overheads recovered, which may be regarded as the standard overhead specified for the accounting period. This amount needs to be equated to the amount of actual overhead incurred, by adding or deducting the difference expressed as a cost variance.

The difference between the variable overheads at standard cost on the actual physical output as compared with the budgeted output constitutes a variance of overheads under- or over-recovered which may be explained within this context as consisting of a calendar variance, a volume variance and an efficiency variance.

The calendar variance is that portion of the over- or under-recovery which is due to the difference at standard cost between the budgeted number of working days in the accounting period and the actual number of working days. The volume variance is the portion due to the difference at standard cost between the budgeted level of output and the actual level of output attained. The overhead efficiency variance is the portion which relates to the difference between the budgeted efficiency of production and the actual efficiency attained. For the purpose of exemplification, assume the following data and legends :

<i>Basic Data</i>		
<i>Item</i>	<i>Budget</i>	<i>Actual</i>
Number of working days	20	22
Standard man-hours per day	8,000	8,400
Output per man-hour in units	1.0	1.2
Total unit output	160,000	221,760
Standard overhead rate per man-hour	2s. 0d.	

This basic data gives the following information :

<i>Variance Data</i>		
<i>Legend</i>	<i>Item</i>	<i>£</i>
A	Standard overheads recovered (221,760 man-hours at 2s.)	22,176
B	Budgetary overheads . . . (160,000 man-hours at 2s.)	16,000
C	B adjusted for calendar . . . ($\frac{22}{20} \times 16,000$)	17,600
D	C adjusted for volume . . . ($\frac{84}{80} \times 17,600$)	18,480

Over- or under-recovery of standard overheads = $A - B = £6,176$.

$$\begin{aligned}
 A - B &= (A - D) + (D - C) + (C - B) \\
 &= \text{Efficiency variance} + \text{Volume variance} + \text{Calendar variance.} \\
 &\quad \text{£3,696} \quad + \quad \text{£880} \quad + \quad \text{£1,600}
 \end{aligned}$$

So far as fixed overheads are concerned, it is assumed that these will be budgeted for each accounting period and equated with actual overheads incurred through a fixed overhead variance. As these overheads are by definition regarded as fixed, questions of usage variance do not arise.

The composition of total costs is outlined in Table 14 on page 202. This is designed to show the main components of total cost and the reconciliation in each case of standard costs with actual costs. A place is included for the constituent parts of the usage variance, which explains why the over- or under-recovery of standard overheads has arisen.

Sales value variances may arise on the revenue side of the accounts, and reflect the differences between the actual value and the standard value of sales over an accounting period. The sales value variance may have three components : a sales mixture variance covering the difference at standard price between the budgetary and actual sales content of each product group ; a sales price variance due to the difference between the standard prices specified and the actual prices charged, and a sales allowance variance reflecting the difference between the standard rebates, allowances and trade discounts specified and those actually made, after taking into consideration any changes in the mix of products. It is assumed that such deductions from invoiced values as cash discounts allowed to customers for prompt payment are included in overhead expenses as financial charges or selling expenses.

PRODUCT GROUP " X "			
<i>Example</i>	<i>Budgetary Sales at Standard Price</i>	<i>Actual Sales at Standard Price</i>	<i>Actual Sales at Actual Price</i>
	£	£	£
Gross	500	567	600
Allowances	25	27	30
	<hr/>	<hr/>	<hr/>
Net	475	540	570
	<hr/>	<hr/>	<hr/>
Net budgetary sales at standard prices			£ 475
Net mix variance :		+ 540 — 475	<hr/> 65
Net revised sales at standard prices			540
Sales price variance :		+ 600 — 567	<hr/> 33
			573
Sales allowance variance		— 30 + 27	<hr/> — 3
Sales at actual prices			<hr/> £570

It is assumed that standard price is the aggregate amount derived from standard labour, material, variable overhead costs and the gross margin.

When sales consist of various product groups of substantial volume, the gross profit margins and other data may be estimated by statistical sampling to yield results which are satisfactory for all normal purposes. Precise accuracy requires, of course, an ascertainment of the standard cost appropriate to each sales invoice and the aggregation of their differences from actual invoiced sales.

The simplified outline of standard cost accounts in Figure 19 indicates the procedure to be followed in order to integrate the cost and financial accounts, ascertain the value of stocks and work-in-progress, evaluate variances and ascertain profits and losses.

When a composite stock and work-in-progress account is maintained

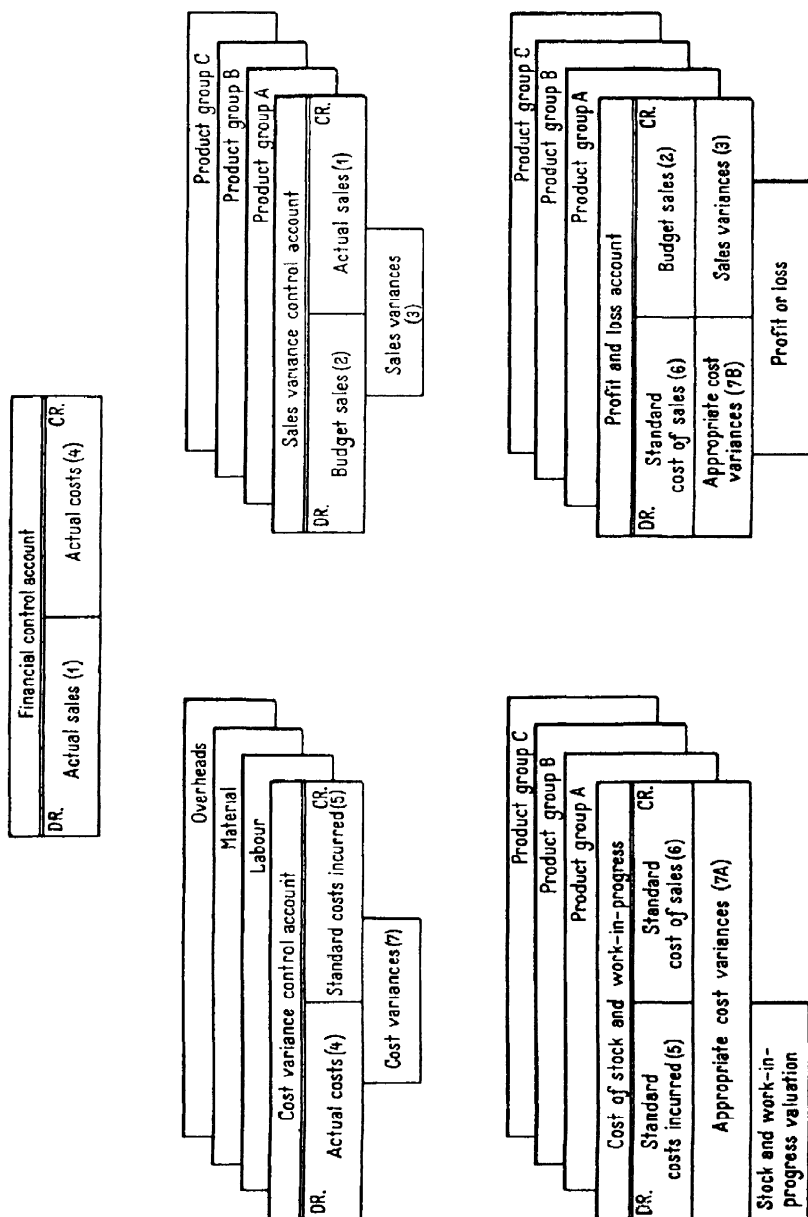


Fig. 19.—Outline Standard Cost Accounts.

for all stores and departments, a considerable saving is made in clerical work by thus avoiding the need to evaluate the great majority of raw material issues from stores and the standard cost of processed work as it proceeds from section to section in the factory. Little extra effort is required to analyse the stock and work-in-progress account according to main product groups, with common material components treated as a product group. Where a close analysis is required,

TABLE 14
SALES COSTS AND VARIANCES *Period.....*

Item	Product Group A		Product Group B		Product Group C		Total	
Sales	£	£	£	£	£	£	£	£
Budgetary standard								
Mix variance .								
Price variance .								
Allowance variance								
Actual sales . .								
Costs								
Direct labour								
Standard								
Efficiency variance								
Wages rate variance								
Direct material								
Standard . .								
Usage variance .								
Price variance .								
Variable overheads								
Standard . .								
Cost variance .								
Fixed direct o'heads								
Standard . .								
Cost variance .								
Totals								
Margins								()
Margins : Per- centage of sales . .								()
Variable Overhead Usage Variance Analysis				Fixed Common Overheads				
				Standard				
				Fixed overhead variance				
				Total costs				
				Operating profit/loss . .				
				Total sales				

additional clerical effort is needed to segregate stocks from work-in-progress. This may be done periodically by pricing at standard cost the schedules of work-in-progress as maintained by progress control. A more laborious method is to credit each department or store, at standard cost, with work transferred from it to other sections and to charge the receiving sections accordingly, as work proceeds in the course of production from section to section. This procedure is not advised, as it merely duplicates in standard cost form the routine statistical work of progress control.

Since all clerical work costs money, the expense of obtaining each quantum of additional information should be carefully considered in advance against the use to which the information will be put and the benefit which will possibly accrue. Just as postings in and out of the stock and work-in-progress account may be made in bulk with considerable savings of clerical work, variances when segregated at their source may likewise be accounted for by block postings to the variance accounts, although in order to permit of their detailed examination, variances need to be suitably analysed as to cause, product and responsibilities, as may be considered desirable.

The accounting convention that current trading results should provide for all known losses but should not reflect any benefit from unrealized gains serves as a guide in the apportionment of variances, whether favourable or unfavourable, between cost of stocks-in-hand and cost of sales made. The stock evaluation policy of the company is also relevant in this connection. All unfavourable usage variances, together with any unfavourable price variances which are unlikely to be reflected in future selling revenues, should usually be charged to cost of current sales and thus to profit and loss account. So far as future selling prices are adequate for the current level of costs and a profit can be envisaged, any unfavourable cost-price variances should normally be apportioned between cost of stocks-in-hand and cost of current sales, provided this procedure complies with the established stock evaluation policy of the company. Any favourable variances, whether of usage or price, should normally be used as the basis of making *pro rata* reductions from the standard cost of stocks-in-hand and the standard cost of current sales.

Table 14 is a sales cost and variance statement, which may be suitably extended to provide comparative and progressive information.

Budgetary Control

In view of the close interaction of economic and domestic events, the industrialist needs not only to pay close attention to the financial aspects of the activities of his company, but also to general conditions in his industry, as well as to general economic conditions and trends at home and overseas. In so doing, he is more likely to succeed in the problem of utilizing resources at a maximum continuous level of activity and of avoiding financial difficulties arising from unwarranted expansion or the unbalanced use of resources. He must be continually looking forward, and in this process he will, as a minimum, form

mental targets to enable him to answer such commonplace questions as : “ What are our marketing prospects as to demands and price-levels ? ” “ Are our resources of space, plant, materials, man-power and finance adequate for future needs ? ” “ Should we call a halt to increasing stock levels ? ”

Opportunism and mere mental targets are, however, inadequate for the successful direction and control of industrial enterprises naturally subjected to the daily hazards of an ever-changing economic climate. For the heavy responsibility of maintaining people in gainful employment and securing the profitable use of risk-capital cannot be undertaken successfully unless co-ordinated action to achieve the desired objective is based on a true appreciation and interpretation of the facts, tangibly expressed in terms which are understood by all concerned. Operational flexibility is also required adequate to ensure that control can be exercised in spite of varying circumstances. In any case, there is more satisfaction in guiding one's own destiny as far as practicable than in being in a state of drift through taking ill-considered and haphazard decisions with the risk of an uncontrollable financial position emerging.

A budget is really a statement of board policy. It has the important advantage that it outlines the plan of achievement and defines the standards through which policy is to be applied and made effective. Control is exercised through managerial action based on an accurate assessment of the evolving situation in relation to the budgeted programme. The introduction of a budget also promotes the correction of organizational faults, because its satisfactory functioning requires that each man knows his function and has the authority effectively to carry out his responsibilities. As a matter of principle, the board of directors is entitled to have advance knowledge of what managers expect to receive from trading and of their proposed expenditure, for it is the function of the board to provide the finance and ensure its profitable use. When managers are obliged to submit estimates revisable only after satisfactory explanation, authority can be delegated without becoming licence. The principle of budgeting is sound, because it provides a system of authorizing all company expenditure within a figure of cost which the business can afford, tells each manager what is expected of him and how he is progressing, whilst indicating where action is necessary to exploit successes and correct failures. There is no doubt that the process of budgeting provides a rewarding exercise in business analysis which serves to eliminate the element of surprise. In fact, as the process of budgeting compels management to study each element of cost and sales and to consider all the inter-related facts of the business situation, it often prompts early avoiding action to counter the impact of forthcoming events and thus avoid embarrassment.

An argument which is sometimes advanced against budgetary control is that the executive who can accurately forecast to-morrow's events does not exist. Budgeting neither guarantees the financial success of a business, nor is it prophetic in that it seeks to evaluate the financial impact of future events whatever may be their outcome. It merely

serves as a guide towards the attainment of certain desired objectives, in so far as events continue to permit their achievement. For profits are affected by many factors—sudden increase in cost-input factors, unexpected trade recession, industrial disputes, market changes and similar events. Although budgets cannot foresee events, budgetary control provides an obvious form of insurance against the full impact of unfavourable events, particularly in the case of those highly-gearred companies in which a loss of output equivalent to a few weeks' turnover may make all the difference between a reasonable profit and severe loss. Whilst the use of a cash budget does not, of course, create cash, it will at least give "clear warning of any breakers ahead".

Accepting the position that planning of some kind is necessary, its precise form and extent need consideration. Planning should not extend to the plan becoming the master, for it is merely a means to an end and not an end in itself. Apart from such an unrealistic attitude being taken, several dangers are inherent in budgetary control, the more intractable ones being of a psychological nature. There is, at one extreme, the executive who always maximizes his requirements and ensures that he expends his allocation to its limit and, at the other, the over-conscientious executive who not only minimizes his requirements, but tends to engage in false economy because of a natural fear to exceed his allocation. There is, too, always, the danger, when introducing a budget system, of provoking a feeling of passive resistance to what may perhaps be considered as a form of bureaucratic control, and this attitude of mind may reflect itself in serious inefficiencies by an absence of complete and unselfish co-operation. On the other hand, the opinion has been expressed that an industrial unit can always with advantage dispense with those who are unwilling to collaborate in this respect, however technically capable they may be, for budgeting requires a high degree of co-operation for its successful operation. A co-operative spirit, it has been suggested, may be induced by the application of a system of incentives based on budgetary achievements, which in itself is a tacit admission that there always will be individualists. Some executives resent "interference" by the application to their activities of detailed budgets and regard their introduction as a personal slight. Misunderstandings of budgetary objectives and procedures due to false fears and prejudices are, unfortunately, not easy to eradicate. There is, therefore, need to consider the extent to which technical or production executives should be asked to interest themselves in problems of financial control, so distracting their attention from their main task, if not indeed worrying them. Co-operation may be more readily forthcoming when essential budgetary requirements are expressed in physical terms and control is exercised, without undue mention of the word, through the smooth application of simple administrative procedures exercised in the fields of recruitment, supply and maintenance. In any case, priority to the introduction of budgetary procedures should be directed towards encouraging the right mental attitude for its reception so as to secure the utmost sustained effort from all concerned so that output will be maximized, for to do so is the surest way to minimize cost per unit of output. The

target and the plan of attainment should be so clearly understood that managers will seek ardently to achieve the desired result.

The need for effective planning and control is admitted, but, in view of the psychological dangers involved, a tactful approach is desirable. Nevertheless, budgetary control provides a means of integrating activities through a framework of decentralized responsibilities. Undue stress and strain at executive levels is avoided when responsibilities are decentralized. When budgets have been established as the authority for necessary action, those who are concerned at each defined or implied level of responsibility may exercise their initiative and resourcefulness in the common task of achieving the desired objectives in conformity with the company's basic policies.

In brief, the objectives of budgetary control are so to regulate income and expenditure on revenue account that satisfactory profits are secured through the most efficient use possible of the company's resources without any resort to under- or over-trading ; to provide an instrument of centralized policy and co-ordinated decentralized responsibilities ; to ensure that capital expenditure is adequate yet profitable and to regulate the amount of expenditure without any impairment of future progress on activities such as research, development and advertising. An overall plan of desired objectives is essential and some means must be secured of measuring performance in relation to current conditions. A conservative objective is, perhaps, better than nothing, but a target or task standard which is reasonably capable of attainment is likely to induce greater effort. There is no short cut to efficiency. Well-managed companies reduce their costs gradually by making pragmatic economies in improving methods of working, accelerating the flow of materials, eliminating duplication and wastages and minimizing paper-work and other routines as far as practicable. The system of control adopted should be simple, flexible, and, as far as possible, unobtrusive and free of unnecessary and vexatious detail. Particular care should be taken that the system in no way unduly circumscribes or "strait-jackets" the organization and so discourages a lively commercial outlook and the exercise of initiative. Appropriate routines should be devised to ensure that the less obvious items are not overlooked and expenditure is properly related to anticipated revenues with reasonable prospect of their securement. As principles and techniques of control are discussed in other chapters, it remains only to mention certain aspects of budgetary control.

Whatever may be the extent of the system of budgetary control, it is important to avoid any impression that it is an accomplished fact, so far as achievements and profits are concerned, just as, in the same way, it is a mistake to assume that the introduction of an incentive scheme in a factory will ensure satisfactory outputs. Care is needed, too, that progressive refinements are not introduced to an excessive degree, but rather that the system is streamlined and conditioned to the changing facts of the situation. To summarize, successful budgeting requires, firstly, the making of a plan which, if translated exactly into action, will produce a satisfactory financial result, secondly, measuring performance against the plan ; thirdly, taking corrective

action against unfavourable variations ; and also revising the plan to consolidate favourable opportunities.

The Sales Forecast.—The sales forecast (see Figure 20) is the vital factor in budgetary control. A long-term sales forecast is necessary in order to regulate expenditure on capital extensions and in research and development, whilst a short-term forecast is required to regulate the current operating programme. The operating budget forecasts trading results, whereas the requirements budget deals with anticipated commitments of a capital nature and with the relative current accounts necessary to the fulfilment of the operating programme. As

Month	Data £'000's				Moving annual total 1953
	Month	Cumulative 1953			
		Last year	This year		
Jan.	79	76	76	939	
Feb.	76	77	153	940	
March	74	75	228	941	
April	73	73	301	941	
May	72	72	373	941	
June	72	75	448	944	
July	77	80	528	947	
Aug.	63	70	598	954	
Sept.	83	85	683	956	
Oct.	89	88	771	955	
Nov.	96				
Dec.	88				

Actual —
Budget - - -

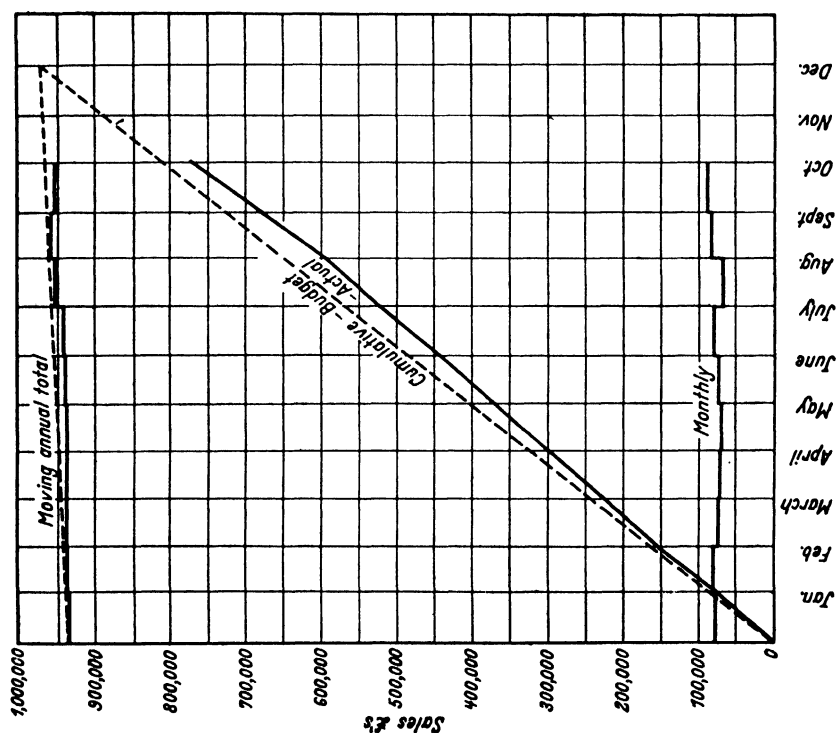


Fig. 20.—The Sales Forecast.

we live in a changing world, flexible budgets are required for the ready appraisal of necessary action when circumstances alter the degree of activity or level of forecasted costs and prices. Anything in the nature of a rigid system of budgeting should be avoided as alien to our way of life, and therefore unlikely to succeed in the long run.

The most important source of information for sales forecasting is provided by the records of current and past sales, their nature, distribution and volume, as projected by the trend of unfilled orders-in-hand and amplified by prospect reports from representatives, distribution agents and other sources of market information. Caution should be exercised in accepting the views expressed in prospect reports, for there is no reason to assume that those reporting are fully alive to changing economic conditions. Careful investigation of existing markets leads the way to their intensive promotion and to research for similar outlets, at home and overseas, currently held by competitors or open to competitive exploitation. Money spent on effective market research is wisely invested. The most difficult process, however, even with the help of official statements of national intentions, is to correctly assess the impact of changing economic conditions. Whereas expanding markets have provided an escape from loss for domestic mistakes and those of customers and suppliers and have permitted many inefficiencies to be covered, the position is rapidly changing as markets favour buyers rather than sellers.

Cash resources, actual and prospective, limit activity. Therefore, it is essential to ensure that the sales forecast is practicable and unlikely to cause over-trading, particularly in the face of receding markets when new money becomes more difficult and costly to obtain. The sales forecast requires approval by the production division as providing a reasonably efficient use of production capacity, for it is equally necessary to avoid under-trading if profitable results are to be secured. Stock levels should also be established with due regard to seasonal demands, production capacity and the trend of sales, so that unnecessary stocks will not be carried yet the reasonable requirements of customers will be met.

The practice which is often adopted of fixing maximum and minimum stocks as a means of stock investment control, whilst expedient for articles in regular and constant use, has the disadvantage that the practice fails to have regard to changing delivery times of supplies and variations in usage. Stocks are preferably related to the levels of production and sales of each product or product group. In fixing stock levels for raw materials, separate treatment is desirable for standard materials in regular use, for stocks which cannot be readily obtained, such as special alloys, for material of only limited application and for reserve materials, such as metal strip, which can be fashioned to required dimensions. Particular care is needed also in fixing stock levels for components bought outside, particularly in respect of special parts obtainable only with difficulty or from limited sources. Work-in-progress should be strictly related to the production cycle and order level if excessive stock investment is to be avoided, and buffer stocks of partly completed components should be authorized where necessary

as an insurance against irregularities in production likely to arise from known "bottlenecks". Neither the stock needs of repair, and maintenance depots nor the need to replace material and components when scrap or wastage occurs should be overlooked. Careful control of finished stock levels is vital if a state of profitless activity is to be avoided, particularly in view of the relatively greater unit investment involved. The effect of fluctuating area demands for stocks where after-sales repair and maintenance services are provided may be met and total stock investment minimized by the creation of regional and central buffer stocks of spares, where mass sales are concerned.

When the sales forecast has been finally approved and production programmes and stock levels have been established, the vital task which remains to be done on the sales side is to ensure that forecasted sales are realized, for the maintenance of a profitable rate of production and the avoidance of excessive stock levels depend upon the realization of sales forecasts. Accordingly, the local, area and regional sales forecasts from which the total sales forecast has been compiled should be issued as working programmes for completion within the allotted period. But it is important to realize that, in the long run, the best sales force in the world cannot force customers to pay for inefficiencies or excess production capacity reflected in an unreasonably high level of costs.

Flexible Operating Budgets.—Targets of sales and production having been determined with economical stock levels and the necessary forces having been released for their attainment, it remains to regulate costs, as established by a flexible operating budget, according to the measure of success achieved in meeting target demands. Whereas sales managers think mainly in terms of financial output, the emphasis in the factory is in terms of physical output and physical requirements. Accordingly, operating budgets expressed in financial terms should be related to physical outputs and requirements for factory management.

The operating budget should fix man-power establishments for various levels of output, so that variations may be made whenever required of the man-hours employed in each section of the organization. The number and distribution of directly productive man-hours or plant-hours worked should usually be the criterion to which all other man-power establishments are related, through the medium of standard man-power set-ups made for each department. In manufacturing industry, many variable costs as well as costs of material usage are directly related to man-power establishments, so that, by controlling man-power establishments, variable costs are also regulated to a fair degree, for it is people who spend money and cause wastage. Unflinching control should be definitely secured through the operation of effective administration procedures and by the application of a comprehensive system of standard costs which interpret the trend of events, minimize the incidence of controllable wastage and disclose the occurrence of uncontrollable expense. For it will be realized that labour costs may be largely dependent on rates fixed by general agreement in the industry concerned and material prices may be

dictated by world conditions. Greater output in the future may avoid price increases when costs rise owing to the pressure of external events ; but when this course is not practicable, no delay should arise in effecting any adjustments required to maintain reasonable profits, for it is much easier to accumulate losses than to recover the amounts lost. Conversely, price reduction in anticipation of increased outputs may, under appropriate conditions, as disclosed by the application of marginal costing principles, assist in the achievement of the target. In times of a general decline in costs throughout the industry, it is preferable to reduce selling prices without unreasonable delay rather than to find oneself outpriced and faced with a receding market. It may well be in times of receding trade that certain overhead costs should be increased, for it would be foolish indeed to weaken the sales force just when greater sales effort and courage is required or to reduce the number of estimators employed when in greater competition from others who are able to quote more promptly. Many firms are now appreciating the hard fact that the technique of selling is completely different from that of placating customers who make demands in excess of available supplies.

Requirements Budget.—The requirements budget reflects the impact of the operating budget on capital accounts, and differentiates, on the one hand, current capital accounts, such as those relating to debtors, creditors, stock-in-trade, work-in-progress and bank balances and, on the other hand, fixed capital accounts, such as those relating to buildings and plant. The requirements budget should be designed to assist in avoiding the uneconomical use of resources, a condition which arises, for example, when the balance of debtors' accounts is unduly high for the terms of trade ; when the terms of trade are unnecessarily advantageous to customers ; when stocks and work-in-progress are unbalanced or temporarily " frozen " ; and when surplus cash is lying at the bank instead of being temporarily invested. Whatever the level of operational activity, there is need to ensure that current accounts are properly related to the volume of production and sales in order that a healthy financial position may be maintained. Here, also, effective administration procedures are essential for success. Unflinching control of buying on the one hand and of credit to customers on the other is indeed essential.

Programmes of capital expenditure should be guided by long-term considerations in which due regard is given to the prospective profitability of the expenditure, the relevant time-factor, the trend of costs and markets and the adoption of definite marketing policies to absorb any prospective increase in output. Capital expenditure which is spasmodically incurred as the need seems to arise is undesirable, for plant acquisitions haphazardly made often lead to unbalanced resources and succeeding " bottlenecks ", whose arbitrary correction provides no lasting solution. Although capital programmes may be generally sanctioned in principle by their inclusion in the requirements budget, the relevant capital expenditure should not be permitted except by the issue of specific sanctions, for the serious hazards of industrial enterprise reside in unsound investment. The requirements budget

should be compiled from requirements questionnaires designed to ensure that nothing is overlooked ; *e.g.*, space, plant, tools, manpower, material supplies, working capital, plant obsolescence, market trends and financing. Established procedures are desirable for following up capital expenditure programmes, for the maintenance of future profits requires that anticipated financial returns will, in fact, arise.

CHAPTER 11

PRODUCTIVITY MEASUREMENT

In simple terms, the ratio of output to resources gives a measure of industrial efficiency or an index of productivity, in which output and resources may be expressed in either physical or financial terms. When efficiency is expressed in physical terms as output per unit of resources (O.U.R.), *e.g.*, tons per man-hour, the index rises and falls with corresponding variations of productivity, and thus provides a convenient means of presenting data to supervisors. Alternatively, the index may be expressed in terms of resources used per unit of output (R.U.O.), for example, man-hours per ton. Although this index expressing the resources consumption rate varies in inverse relation to productivity, it has the advantage, where several processes are concerned, of facilitating the compilation of an overall index by the simple addition of the individual indices for each process and of making any necessary adjustments for variations in plant capacity.

From a practical point of view, measures of productivity are essential in order to permit the realistic planning and progressing of industrial work. Productivity measurement is indeed an important tool of industrial management, for it not only indicates where improvements are possible, but it enables progress required to obtain increased efficiency to be evaluated. Statistical analysis of departmental productivity pin-points the relative strengths and weaknesses of an industrial unit, so that praise may be given or remedial action may be taken as circumstances require. Another important advantage of productivity measurement is that it can be a powerful influence in stimulating interest in industrial efficiency in general, for “productivity consciousness” is an attitude of mind which is a condition precedent to the improvement of industrial efficiency, in which increased production and cost reduction are complementary factors. If, as often is the case, an absolute measure is impracticable, a relative measure may suffice for all practical purposes.

Physical Indices

When we deal with products which are sensibly homogeneous, it is easy to express output in terms of physical units. When production consists of varieties of the same basic product, it is generally possible to achieve reasonable accuracy in assessing overall performance by equating the various outputs in terms of a standard product taken as a basis. In order to limit error, it is desirable to use as a standard product the one which is the most typical of total production. In some cases, the units of input factors may provide an acceptable index of the volume of output ; for example, where the rate of activity of a plant is satisfactorily reflected by the rate of input of the main homogeneous raw material and if the rate of variation in the proportion of

different joint-products is not wide. When production is of a heterogeneous nature, consisting of a variety of entirely different products, time-studies provide a means of setting production standards and a relative measure of actual performance.

Unless indices of productivity are based on outputs which are sensibly homogeneous in character, or can be related to one another on a satisfactory basis, their reliability decreases with their remoteness from the shop floor, so that any index obtained on a national basis can only be empirical and unreliable otherwise than for making short-term comparisons. It is not possible to formulate an absolute and universal measure of productivity, and there appears to be no general alternative to the accustomed method of assessing the overall efficiency of industrial undertakings by financial results, where competitive trading places a premium on initiative and vitality.

Added Values Index

The added value measure of productivity in terms of output per unit of resources is expressed as

$$\frac{\text{Wages plus overheads and profit}}{\text{Wages}}$$

This index is clearly inapplicable as a measure of departmental performance and provides an unreliable index of factory or national productivity, for high ratios of overheads and profits to wages are by no means reliable indications of industrial efficiency. Selling prices, too, on which the numerator is based are not necessarily an index of output, for increases may arise from other causes, such as scarcity values or monetary inflation. In some cases, also, the value of the raw material content may influence the numerator when, in price-fixing, profit is added to the total cost and the raw material content varies.

Output per Man-Hour

Where labour cost is high relative to the annual cost of capital employed and there is a diversity of products, a practical index of productivity is provided by relating output to total man-hours and interpreting the results in conjunction with cost data. Whilst appreciating the incidence of other cost factors, high productivity of direct labour often provides the most practical target for improved overall productivity in manufacturing industry. For many of the actions necessary to increase the productivity of direct labour have the incidental effect of improving the application of other resources, whilst progress reveals where action is needed to maintain other activities in balance with the increased productivity of direct labour.

It is important to appreciate the situations under which an index of output per man-hour may vary from time to time. Fluctuations in the rate or scale of production may cause variations in output per man-hour due to an altered combination of the main factors of production, as, for example, the incidence of fixed and variable man-hour requirements, or the ratio of raw material to total man-hour requirements. Since all skills of labour are equally weighted by hours of

work, a change in relative rates of pay for different skills may induce substitution among various skills, with a consequent effect on overall output per man-hour. Likewise, changes in the relative incidence of production factors may cause a substitution between one of these factors and the labour factor ; for example, a shortage of materials may induce the use of substitutes requiring more labour in the process. Technical changes may also alter the effectiveness of a single factor of production or the way in which the various factors are combined. Where such technical innovations arise in other sectors of the economy and affect the earlier stages of the production process, they may significantly influence the input/output labour rates of the company concerned. Internal technical changes resulting in the substitution of other production factors for any type of labour may also vary output per man-hour. Lastly, it should be noted that technical changes which result in an improved quality of output, as distinct from a greater volume of output, are not reflected in an index of output per man-hour as they defy statistical measurement.

It is sometimes considered sufficient to make spot surveys of productivity rather than to base results on a comprehensive recording system. Spot surveys have the disadvantage of overrating output per man-hour by under-estimating non-productive or indirect time. Just as the adequacy of an accounting system depends on the complete integration of financial and cost accounts, so should productivity data be linked with cost accounts in order to ensure completeness and thereby provide a fully integrated system of financial and statistical control.

Productivity Standards

An index is of limited use unless it is referred to a basic standard. A short-term standard is normally assessed on the basis of current conditions as to resources available. Current performance may be

expressed as $\frac{\text{current standard}}{\text{actual resources used}} \times 100$ in terms of resources used per unit of output (R.U.O.) or as $\frac{\text{actual output}}{\text{current standard}} \times 100$ in terms of output per unit of resources (O.U.R.).

Technical expertness and effective labour utilization together govern direct labour productivity. The technical factors are design engineering, which seeks to simplify the product in order to maximize the effectiveness of manufacturing resources, and method engineering, which aims by work study to reduce the effort required to a minimum. Work is minimized by adopting economical tooling and avoiding non-productive effort, especially in the way of work movement and handling from the time of raw material intake to the despatch of packed products, through adequate attention to factory layout and work-flow. As the current standard is based on existing technical facilities, the extent to which the actual time taken exceeds the current standard time is a measure of the extent to which available man-power is failing to benefit from current technical resources.

In addition to a current short-term standard, there is need to provide a long-term objective, based on the best-known achievements at home and overseas. The attainment of such an objective target would require a continuous improvement in technical resources, expertness and in managerial ability.

Progress towards an objective performance index of 100 may be expressed as

$$\frac{\text{Objective standard}}{\text{Actual resources used}} \times 100, \text{ in terms of resources used per unit of output (R.U.O.) or}$$

$$\frac{\text{Actual output}}{\text{Objective standard}} \times 100, \text{ in terms of output per unit of resources (O.U.R.)}$$

so providing an attainable objective to stimulate progress.

The objective performance may be regarded as being made up of a current performance and a technical performance, where objective performance = $\frac{\text{current performance} \times \text{technical performance}}{100}$. Since

the current standard is an indirect measure of the technical facilities to be available for its attainment, progress in technical effectiveness may be expressed by a technical performance, as

$$\frac{\text{Objective standard}}{\text{Current standard}} \times 100, \text{ in terms of resources used per unit of output (R.U.O.) or}$$

$$\frac{\text{Current standard}}{\text{Objective standard}} \times 100, \text{ in terms of output per unit of resources (O.U.R.).}$$

For example :

Assume : Actual resources used = 500 plant-hours per ton of output.
 Current standard = 400 plant-hours per ton of output.
 Objective standard = 300 plant-hours per ton of output.

Then :

$$\begin{aligned} \text{Objective performance} &= \frac{\text{Current performance} \times \text{Technical performance}}{100} \\ &= \frac{1}{100} \left(\frac{\text{Current std.} \times 100}{\text{Resources used}} \times \frac{\text{Objective std.} \times 100}{\text{Current standard}} \right); \\ &= \frac{1}{100} \left(\frac{400 \times 100}{500} \times \frac{300 \times 100}{400} \right); \\ &= \frac{80 \times 75}{100} = 60 \end{aligned}$$

or,

$$\begin{aligned} \text{Objective performance} &= \frac{\text{Objective standard}}{\text{Resources used}} \times 100 \\ &= \frac{300}{500} \times 100 = 60 \text{ as before.} \end{aligned}$$

Improvement in any of these indices as performance approaches the target of 100 is clearly more commendable than an apparently similar improvement from a lower performance. Improvements in plant and conditions which result in changes in time-study or other basic standards will affect current standards ; but the introduction of improved plant and processes as visualized in the assessment of the

objective standard will not affect the objective standard until such time as further long-term improvements are assessed. Whatever the changes made, both standards continue to be expressed as 100.

When the individual or group performance of direct producers has been measured by reference to a time-study or other standard, it is desirable to measure the current performance of each productive section of the factory and of the factory as a whole. In order to assess the current departmental standards for indirect employees as distinct from direct workers whose performance is assessed on operational time-study standards, it is necessary to establish, for various percentages of the maximum capacity of each department, the ratios of direct to indirect man-hours. This is done by making a careful assessment of the number of various classes of indirect workers required as the number of direct workers increases from a minimum to a maximum. Assume, for example, the following data derived from a departmental assessment :

STANDARD DEPARTMENTAL SET-UP	
<i>Capacity used as Percentage of Maximum</i>	<i>Ratio of Direct to Indirect Man-hours</i>
10	1 : 0.70
20	1 : 0.45
30	1 : 0.37
40	1 : 0.32
50	1 : 0.30
60	1 : 0.28
70	1 : 0.27
80	1 : 0.26
90	1 : 0.25
100	1 : 0.25

On the assumption that this department is working at 60 per cent of maximum capacity with a practicable maximum of 95 per cent, that the actual ratio of direct to indirect workers is 1 : 0.32, as compared with a standard of 1 : 0.28, and that direct workers are achieving a production output of 80 units of work per direct man-hour, as compared with a current standard of 100 u.p.h. :

- (a) the total actual man-hours employed per 100 units of output are $\frac{100}{80} \times (1 + 0.32) = 1.65$
- (b) the total standard man-hours per 100 units of output are $1 + 0.28 = 1.28$
- (c) the maximum possible output may be expressed on a scale of 100 as $95\% \times 100 = 95$
- (d) the actual output may be expressed on a scale of 100 as $60\% \times 80 = 48$

On this basis, current physical performances may be expressed as follows :

$$\begin{aligned}
 \text{Direct operative performance} &= 80\% ; \\
 \text{Indirect operative performance} &= \frac{0.28}{0.32} \times 100\% = 87.5\% ; \\
 \text{Departmental performance} &= \frac{1.28}{1.65} \times 100\% = 77.5\% ; \\
 \text{and Departmental output} &= \frac{48}{95} \times 100\% = 50.5\% .
 \end{aligned}$$

TABLE 15

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Dept.	Maximum Direct Man- Hours	Actual Direct Man- Hours	Capacity Used %	Units of Work Prod.	Direct Op. Perf.	Indir. Man- hours	Actual Indir. Set-up	Stand'd Indir. Set-up	Indir. Perf.	Total Man- hours	Total Actual Man-hrs. per 100 Units	Total Stand'd Man-hrs. per 100 Units	Current Prod'y Perf.	Current Output Perf.
A	9,000	7,272	80.8	574,488	79	2,109	0.29	0.26	90	9,381	1.63	1.26	77	67
B	18,000	13,536	75.2	1,150,560	85	4,332	0.32	0.27	84	17,868	1.55	1.27	82	67
C	15,000	8,715	58.1	749,490	86	2,876	0.33	0.28	85	11,591	1.55	1.28	83	53
D	23,000	20,769	90.3	1,973,055	95	5,815	0.28	0.25	89	26,584	1.35	1.25	93	90
E	25,000	15,050	60.2	1,354,500	90	5,267	0.35	0.28	80	20,317	1.50	1.28	85	57
Totals	90,000	65,342	72.6	5,802,093	89	20,399	0.31	0.27	87	85,741	1.48	1.27	86	68
				Works services	.	9,801	0.15	0.12	80	9,801	0.17	0.12	71	
				Engineering	.	11,761	0.18	0.15	83	11,761	0.20	0.15	75	
				Administration	.	16,336	0.25	0.20	80	16,336	0.28	0.20	71	
				Totals	.	58,297	0.89	0.74	83	123,639	2.13	1.74	82	68

Unused capacity and ineffective operative performance both adversely affect the current output performances. Unused capacity may result from absenteeism by direct or indirect workers. Ineffective performance by direct operators may result from the absenteeism of indirect workers. Time spent by direct operatives in waiting for work, in rectifying work or in other non-productive activity, reduces productive man-hours and correspondingly increases indirect man-hours to the detriment of the actual set-up ratio, thus reducing the indirect performance as well as the departmental productivity performance ; in addition, the output performance is reduced.

In a manner similar to the assessment of current output and productivity performances for a department, it is desirable to determine current indices of performance for the factory as a whole, as exemplified in Table 15.

$$\begin{aligned}
 \text{Direct operator performance (E)} &= \frac{\text{Units of work produced (D)}}{\text{Actual direct man-hours (B)}} \\
 \text{Indirect performance (I)} &= \frac{\text{Standard indirect set-up (H)}}{\text{Actual indirect set-up (G)}} \times 100\% \\
 \text{Total actual man-hours per 100 units of work (K)} &= \frac{\text{Total man-hours (J)}}{\text{Units of work produced (D)}} \times 100\% \\
 \text{Total standard man-hours per 100 units of work (L)} &= 100 \text{ units per hour with standard set-up} \\
 &= 1 + H \\
 \text{Current productivity performance (M)} &= \frac{\text{Total std. man-hours per 100 units (L)}}{\text{Total actual man-hours per 100 units (K)}} \times 100\% \\
 \text{Current output performance (N)} &= \frac{\text{Actual output (D)}}{95\% \text{ of maximum capacity at 100 U.P.H.}} \times 100\% \\
 &= \frac{\text{Capacity used \% (C)} \times \text{Dir. op. perf. (E)}}{95 \times 100} \times 100\%
 \end{aligned}$$

The results are summarized in Table 16 :

TABLE 16

<i>Current Performance %</i>		
Direct operator performance . .		89%
Indirect operative performance . .		83%
Factory performance		82%
Output performance $\left(\frac{72.6 \times 89}{95 \times 100}\right) 100$.		68%

Provided objective standards of productivity are established, similar calculations made by using the formulæ stated on page 215 assess technical and objective performances.

Inter-factory comparisons of output per man-hour require an appreciation of the technical differences between factories, even of those making similar products. Such comparisons often reveal differences of opinion between managements as to what constitutes a reasonable rate of productivity. Wide differences in productivity

arise not only between individuals, but also between similar departments in different factories. Even in factories showing a relatively high rate of productivity, it is usually possible to improve on some operations when detailed comparisons are made with factories showing less overall productivity. Although absolute comparisons of productivity performance may not be practicable because of differences in the basic levels adopted for work measurement, nevertheless relative differences may be investigated both inter-departmentally and between factories. In addition, comparisons may be made on a relative basis of the secular trend of performances. Such comparisons can be invaluable in indicating where corrective action is desirable.

The Incidence of Costs

It has been suggested that in the assessment of a physical index of productivity, adjustment should be made to allow for the man-power equivalent of "hidden man-power"—represented by the capital employed in various assets, such as plant, and by amounts expended in obtaining the benefits of outside services. In such cases, the man-power equivalent may be assessed by dividing the annual plant depreciation charge and other relevant costs by the average annual wage, a procedure which is open to the objection that it introduces an arbitrary calculation, particularly when applied to conditions which could easily result in magnifying any error, as, for example, where capital expenditure per man-year is high or when operative activities are limited through the use of sub-contractors. As an alternative, where capital expenditure per man-year is relatively high, the productivity index may be associated with an amount representing capital expenditure per man-year in order to reflect the incidence of "hidden man-power".

An index of productivity which merely incorporates physical terms is clearly incomplete in so far as it ignores the cost of the resources used. The incorporation into the index of financial terms requires that allowances be made for changes in the general price level. This may be done by formulating an index of general prices, weighted according to the relative importance of each constituent to the industry concerned and by making appropriate adjustments to the productivity index in accordance with changes in the price level.

In the index of physical productivity which has been considered, the basis taken was "man-hours per 100 units of work", so that the standard number of man-hours appeared in the numerator and the actual number of man-hours was used in the denominator. In order to express this index in financial terms, we need to know the standard and actual costs per man-hour, so that we may determine the standard and actual costs per 100 units of work; for example, in the case considered above the factory current productivity performance was expressed as

$$\frac{\text{Total standard man-hours per 100 units}}{\text{Total actual man-hours per 100 units}} \times 100\% = \frac{1.74}{2.13} \times 100\% = 82\%$$

If standard costs are adjusted on the basis of the actual capacity

utilization of the factory at a given general price-level, costs per man-hour may be presented, for example, in the following form :

COSTS PER MAN-HOUR					
	<i>Standard</i>	<i>Capacity Variation</i>	<i>Efficiency Variation</i>	<i>Price Level Variation</i>	<i>Actual Cost</i>
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Labour .	3 3	9 +	6 +	1 - +	5 6
Material .	7 9	3 +	3 +	3 - +	11 3
Overheads .	4 3	1 9 +	9 +	6 +	7 3
	<hr/> 15 3 <hr/>	<hr/> 2 9 + <hr/>	<hr/> 1 6 + <hr/>	<hr/> 4 6 + <hr/>	<hr/> 24 - <hr/>

Ignoring for this purpose the effect of changes in the general price level from the basic level, the current financial productivity index at actual capacity used may be expressed as :

$$\frac{1.74 \text{ man-hours at } 18/- \text{ per man-hour}^*}{2.13 \text{ man-hours at } 19/6 \text{ per man-hour}} \times 100\%, \text{ or } \frac{156.6}{2.0768} = 75.4\%$$

* Note $15/3 \text{ plus } 2/9 = 18/-$.
 $18/- \text{ plus } 1/6 = 19/6$.

In the result, an index of productivity has been obtained embracing physical attainments interpreted in relation to cost data, in which due consideration has been given to variations in utilized plant capacity, and the elimination of changes in the general level of prices, with the underlying assumption that quality has been maintained. As selling prices do not enter into the calculations, no distortion has been caused from this source as may arise in the application of the added-value index discussed earlier in this chapter. The current financial productivity index as exemplified should be preferably associated with an index of total capital employed per man-year. Such an index could be analysed to disclose indices of fixed capital and working capital, with such further detail as may be necessary for comparative purposes.

CHAPTER 12

STATUTORY ACCOUNTS

EVERY company is under a statutory obligation to keep proper books of account in order to give a true and fair view of the state of the company's affairs and explain its transactions. The directors are required to lay a profit and loss account and balance sheet before each annual general meeting. The accounts must be made up to a date within nine months prior to the meeting, or within twelve months if the company has overseas interests, unless these periods are specially extended by the Board of Trade.

The profit and loss account must give a true and fair view of the profit or loss of the company for the financial year concerned, and the balance sheet must give a similar view of the state of affairs of the company at the end of the relevant financial year ; moreover, both these documents must, as far as applicable, comply with the detailed requirements of the Eighth Schedule to the Companies Act, 1948. Compliance with these requirements is generally without prejudice either to the general requirements of the Act or to the overriding requirement to present a true and fair view. There is a saving clause to the effect that the Board of Trade may, with the approval of the company's directors, modify any of the requirements of the Act regarding matters to be disclosed in the profit and loss account and balance sheet, except the requirement to give a true and fair view, for the purpose of adapting them to the circumstances of the company.

Every balance sheet of a company must be signed on behalf of the board by two directors of the company, or, if there is only one director, by him. The profit and loss account must be annexed to the balance sheet, together with the auditor's report, after approval by the board of directors before the balance sheet is signed on their behalf. In addition, a report by the directors must be attached to every balance sheet laid before a company in general meeting, with respect to the state of the company's affairs and their recommendations as to dividends and transfers to reserves.

There is a requirement that the report shall deal, so far as material for the appreciation of the company's affairs by its members, with any change during the financial year in the nature of the company's business, or subsidiaries, or in the classes of business in which the company has any direct or indirect interest. The directors are, however, given a discretion and need not refer to any matter of this kind which in their opinion would be harmful to the company's business or that of any of its subsidiaries. A practical and possibly serious difficulty may arise here, and directors, in spite of the latitude allowed them, should guard against any undue conservatism, which is unfortunately a far too obvious failing of published accounts in this country.

In general, every copy of a balance sheet, including every document legally required to be annexed thereto, which is to be laid before a company in general meeting, together with a copy of the auditor's report, must be sent, not less than twenty-one days before the meeting, to every member of the company and holder of its debentures and all other persons so entitled. If the documents are sent within twenty-one days before the meeting, they are nevertheless deemed to have been duly sent if it is so agreed by all the members entitled to attend and vote at the meeting. These documents must also be furnished on demand without charge to any member or debenture-holder of the company.

The auditors for the time being are required to make a report to the members on the accounts examined by them and on every balance sheet, every profit and loss account and all group accounts laid before the company in general meeting, and their report must contain statements as to the matters mentioned in the Ninth Schedule to the Companies Act, 1948. Their report must be read before the company in general meeting and be open to inspection by any member.

It is specially provided that any information which is required by the Act to be given in accounts or in a statement annexed may be given in the directors' report. In such cases, the directors' report must be annexed to the accounts and the Act applies to the report accordingly, except that the auditors are only to report on accounting information contained therein.

There is now a statutory requirement in the case of published balance sheets that they shall disclose comparative figures for the previous year. In some cases, particularly in the United States, comparisons are made of several years' figures, and this practice is to be commended, for in order to assess the financial stability of a company regard is needed not only to the current balance sheet and profit and loss account, but also to the trend of the figures. Their proper appreciation requires a clear mental picture of the physical assets and human resources represented by the figures in the accounts and, not least, appreciation of the quality of the management and the place of the business in the general pattern of industry—all these factors are reflected in the net worth and earning power of the company.

Whilst the provisions of the Companies Act, 1948, and particularly of the Eighth Schedule, prescribe in great detail the minimum information to be disclosed by directors in the balance sheet and profit and loss account of their company, the Cohen Committee, whose recommendations gave rise to this Act, took the view that standardization of accounts might result in restriction of progress in presenting improved forms of accounts and that a wide diversity of business made it impracticable to effect standardization. Although balance sheets and profit and loss accounts are legally directed primarily to the company's share and debenture-holders, and contain information which is essential to the running of the business, it is well to realize that other persons, such as the company's banker, creditors, members of the Stock Exchange and the public at large in their capacity as investors are also interested. Final accounts should, therefore, be

framed to contain sufficient detail to meet the needs of all these interested parties and their usefulness is often increased when different displays of the same facts are prepared to suit the particular viewpoints concerned. In any event, accounts should be presented in such a way as to illustrate the true trend of events rather than to avoid difficult questions at shareholders' meetings or disparaging remarks in the financial press, for truth is essential to progress. The freedom allowed in the form of presentation of accounts has led to various changes in their appearance, even to the extent that conventional terms have been abandoned to ensure greater intelligibility.

As a year is a long period, the transatlantic practice of reporting to shareholders more frequently than once a year, say by way of publishing quarterly earning statements, has much to commend it. It is quite possible to give a comprehensive trading picture in a few lines, together with movements in balance sheet items and a note of any exceptional conditions, so that valid comparisons are possible. If the making of true comparisons is to be facilitated and the determination of standard ratios for companies engaged in similar activities is to be made possible, and if the points of strength and weakness in a company's financial position are to be readily discernible, it is certain that more uniform accounting treatment is needed—of definition, classification and accounting practice, than now exists. Correct accounting in this sense could have influential social consequences by raising the level of intelligent criticism in the conduct of public affairs and encouraging industrial progress by influencing capital to flow in the direction of maximum productivity.

PROFIT AND LOSS ACCOUNTS

Profit is represented both in the revenue accounts as an excess of income over expenditure and in the capital accounts as a surplus of assets over liabilities; conversely, loss is represented in the revenue accounts by an excess of expenditure over income and in the capital accounts by more liabilities than assets. Profits for any period cannot be ascertained with absolute precision, because only estimates are possible of outstanding commitments and unrealized assets. Experience, too, indicates that some margin of safety is desirable to cover unexpected losses which may arise even in the best managed companies.

The profit and loss account is compiled from the revenue accounts and shows earnings on the credit side and expenses on the debit side grouped under such general headings as factory expenses, selling expenses, administration expenses and financial charges—a practice which, however, is not so helpful to management as when the account differentiates between relatively fixed and variable expenses.

The profit and loss account may be divided into an operating section, a non-operating section and an appropriation section. In the interest of clarity and proper understanding, the derivation of operational profit is preferably shown on the basis of historical cost, with a separate statement of the subsequent effect of policy adjustments necessary in

order to ensure the preservation of shareholders' equity. Additions to historical cost, particularly in respect of plant depreciation and stock usage, would be required in a period of monetary inflation to emphasize the financial requirements for replacing the assets concerned.

The operating section of the profit and loss account is concerned with current operating activities and may be generalized as follows:

Operating Section of Profit and Loss Account

£	£
Operating expenditure on the basis of historical cost :	Operating income . . .
Factory expenses . . .	
Selling expenses . . .	
Administrative expenses .	
Financial charges . . .	
Policy adjustments . . .	
Balance being operating profit . . . c/d	or, Balance being operating loss . . . c/d
Total . . . £	Total . . . £

In addition to income derived from sales and other operating activities, additional incomings may arise which do not require any operating activity on the part of an industrial company, as, for example, dividends from trade investments and subsidiary companies, interest from bank deposits and capital gains which arise when an asset is sold for an amount greater than its book value. These incomings should be shown separately against non-operating outgoings, such as capital losses, after arriving at the operational profit, as generalized below:

Non-Operating Section of Profit and Loss Account

£	£
Operating loss b/f . . .	or Operating Profit b/f . . .
Non-operating expenditure (itemized) . . .	Non-operating income (itemized) . . .
Balance of income . . . c/d	or Deficit . . . c/d
Total . . . £	Total . . . £

The amount of any operating profit or loss, as affected by any non-operating incomings or outgoings, gives either a net amount of income available for appropriation together with any unappropriated balance remaining from previous accounting periods, or a deficit still to be recovered from future successful operations. Appropriations may be required for such outgoings as taxation, dividends and reserves. Thus the generalized appropriation section appears as follows :

Appropriation Section of Profit and Loss Account

£	£
Deficit b/f . . .	or Balance of income b/f . . .
Taxation . . .	Transfer from Reserves . . .
Reserves . . .	
Dividends . . .	
Unappropriated balance c/f	or Deficit c/f . . .
Total . . . £	Total . . . £

The Act does not require that the published profit and loss account shall show trading figures, itemized or grouped; it merely prescribes the publication of a certain minimum of comparative information. Current practice, so far as disclosure is concerned, is, in general, far behind transatlantic practice and a great need exists for a more realistic policy of disclosing turnover figures and costs, although, in a few notable cases, this is done.

The minimum disclosure required by the Act in respect of amounts shown in the published profit and loss account necessitates separate disclosure of each of the following amounts:

- (1) The amount charged to revenue to provide for depreciation, renewals or diminution of value of fixed assets. Although only the total charge need be shown, it is desirable to disclose the amounts set aside in respect of each class of assets.
- (2) Any material amount set aside to provisions (other than for depreciation, renewals, or diminution in value of assets) or withdrawn from such provisions and not applied for the purpose thereof, except where the Board of Trade agrees that there is no need to show such an amount set aside for provisions, in which case any heading stating an amount determined after taking into account such a provision must indicate the fact. The Board of Trade has to be satisfied that disclosure is contrary to the interests of the company and the public good.
- (3) The amount of auditors' remuneration, including expenses, where the amount is not fixed by the company in general meeting. Apparently payments to the company's auditors for work other than that for which they are paid in their capacity as auditors need not be disclosed.
- (4) Unless disclosed in a statement annexed to the accounts, the aggregate amounts of directors' emoluments. The accounts have to disclose the amounts paid under each of the following headings to the directors as a whole, distinguishing between " emoluments in respect of services as a director " and " other emoluments " :
 - (a) Directors' emoluments, whether of the company or its subsidiaries in whatever capacity they act, including in emoluments any pension contributions, fees, percentages, expense allowances charged to income tax, and the estimated money value of any benefits in kind.

It is only permissible to pay a director remuneration free of income tax where there was a contract to this effect in force on 18th July, 1945, making express provision for the payment. In the case of contracts made after this date, or a provision in the Articles of Association or in any resolution whenever made, authorizing that a director shall be paid a certain sum free of income tax or otherwise varying with the amount of his income tax, he is entitled only to the amount stated less tax.

Articles sometimes provide that the amount of remunera-

tion may vary with profits ; but there is no rule that directors' remuneration can only be paid out of profits. Unless otherwise provided, the remuneration is payable even in the absence of profits. A director paid by a percentage on " net profits " is entitled to the percentage on the net profits before deduction of income tax.

- (b) Directors' and past directors' pensions and similar payments, excluding any pension paid or receivable under a pension scheme, if the scheme is such that the contributions made are substantially adequate for the maintenance of the scheme, and distinguishing between pensions in respect of service as a director of the company and/or a subsidiary, and other pensions.
- (c) Any compensation paid to directors or past directors for loss of office, including sums paid as consideration for or in connection with his retirement from office, either as a director or as holder of any other managerial office in the company or a subsidiary and distinguishing between compensation in respect of loss of office of director, whether of the company or its subsidiary, and compensation in respect of other offices.
- (5) The amount of the interest on the company's debentures and other fixed loans. Interest on bank overdraft is excluded; but all interest is shown gross whether taxed by deduction or not.
- (6) The amount of income from investments, distinguishing between trade and other investments. The accepted practice is to show all income gross.
- (7) The charge for United Kingdom taxation, distinguishing where practicable between income tax and other taxation, such as profits tax. In the interests of full disclosure, the gross amount of profits tax may be shown with a deduction for non-distribution relief, leaving the net amount of the charge for profits tax. Usually only the net amount is shown. Another method is to show the additional amount of profits tax incurred because of distributions by describing the charge for the year as " profits tax, whereof £x is specially appropriate to distributions ", or, in the case of dividends, the extra amount appropriate to the distribution may be added in order to indicate the true cost of dividends. This is, however, inappropriate if the company has a material amount of franked investment income.
- (8) The amounts respectively provided for redemption of share capital and for redemption of loans.
- (9) Any material amounts actually or proposed to be set aside or withdrawn from reserves.
- (10) The aggregate amount of dividends paid and proposed.

In addition, the following matters are required to be stated by way of note, if not otherwise shown:

- (1) If depreciation or replacement of fixed assets is provided for

otherwise than by a depreciation charge or provision for renewals, the method by which it is provided for, or the fact that it is not provided for if such is the case. Although the requirement as to disclosure of the fact, where applicable, that no depreciation is provided, applies to provisions in respect of the current year, the fact that an excess provision may have been made in a previous year need not be disclosed. Certain provisions made, such as premium payments on a leasehold redemption policy, are not shown as depreciation, but as charges against revenue, covered by a note to the effect, for example, that the depreciation of the company's freehold property is being covered by means of a redemption policy.

- (2) The basis on which the charge for United Kingdom income tax is computed.
- (3) Whether or not the amount stated for dividends paid and proposed is for dividends subject to deduction of income tax.
- (4) Comparative figures for all items for the immediately preceding year.
- (5) Any material respects in which any items in the profit and loss account are affected by any change in the basis of accounting, or by transactions of a sort not usually undertaken by the company, or otherwise by circumstances of an exceptional or non-recurrent nature. For example, the need for separate disclosure arises in connection with a distribution charge for profits tax, because the amount is not legally a charge in respect of the profits of the period, and is therefore of an exceptional nature.

THE BALANCE SHEET

Format

The balance sheet, which is really a statement of the financial position, displays the balances shown by the capital accounts together with amounts held in reserve and the balance of profit or loss as disclosed by the profit and loss account. The balance sheet may be generalized in one or other of various forms, in which the significance of the figures depends on their arrangement—a fact which is apparent when comparison is made of the simplified examples shown below, from which, in the interest of clarity, certain items which present special accounting problems are excluded, such as reserves for future taxation and amounts representing goodwill and unabsorbed development expenditure. Details of the authorized share capital are also omitted as this is merely a memorandum figure which does not enter into the capital accounts, the amount of capital actually issued being shown as contributed capital. In order to avoid over-burdening the figures, the net value of assets is shown after depreciation, although published balance sheets are required to show the amount of depreciation provided to date. These various matters are, however, dealt with later.

(A) SIMPLIFIED BALANCE SHEET

STATEMENT OF FINANCIAL POSITION AT 31ST DECEMBER, 195

<i>Share Capital and Surplus</i>			<i>Fixed Assets (less depreciation)</i>		
	£	£		£	£
Preference shares . . .	100,000		Land and buildings . . .	200,000	
Ordinary shares . . .	300,000		Machinery and plant . . .	250,000	
	<u> </u>	400,000	Office equipment . . .	30,000	
Capital reserves . . .	30,000			<u> </u>	480,000
Revenue reserves . . .	50,000		Permanent investments		50,000
Retained profit . . .	20,000				
	<u> </u>	100,000			
<i>Borrowed Funds</i>			<i>Current Assets</i>		
Mortgage debentures . . .		200,000	Stocks and work-in-progress . . .	106,000	
			Sundry debtors . . .	90,000	
<i>Current Liabilities</i>			Marketable investments	30,000	
Sundry creditors . . .	40,000		Bank balance . . .	10,000	
Accrued expenses . . .	8,000		Cash in hand . . .	2,000	
Current taxation . . .	20,000			<u> </u>	238,000
	<u> </u>	68,000			
Total . . .		<u>£768,000</u>	Total . . .		<u>£768,000</u>

(B) RE-ARRANGED FORM OF SIMPLIFIED BALANCE SHEET

STATEMENT OF FINANCIAL POSITION AT 31ST DECEMBER, 195

<i>Current Liabilities</i>			<i>Current Assets</i>		
	£	£		£	£
Sundry creditors . . .	40,000		Cash in hand . . .	2,000	
Accrued expenses . . .	8,000		Bank balance . . .	10,000	
Current taxation . . .	20,000		Marketable investments	30,000	
	<u> </u>	68,000	Sundry debtors . . .	90,000	
<i>Working Capital</i>			Stock and work-in-progress . . .	106,000	
Excess of current assets		170,000		<u> </u>	238,000
Total . . .		<u>238,000</u>	Total . . .		<u>238,000</u>
<i>Share Capital and Surplus</i>			<i>Working capital</i>		
Ordinary shares . . .	300,000				170,000
Capital reserves . . .	30,000				
Revenue reserves . . .	50,000		<i>Fixed Assets (less depreciation)</i>		
Retained profit . . .	20,000				
	<u> </u>		Land and buildings . . .	200,000	
Equity . . .	400,000		Machinery and plant . . .	250,000	
Preference shares . . .	100,000		Office equipment . . .	20,000	
	<u> </u>	500,000		<u> </u>	480,000
<i>Borrowed Funds</i>			<i>Capital employed</i>		
Mortgage debenture		200,000			650,000
		<u> </u>	Permanent investments		50,000
Total . . .		<u>£700,000</u>	Total . . .		<u>£700,000</u>

(C) TABULAR FORM OF SIMPLIFIED BALANCE SHEET

<i>Current Assets</i>					£	
Cash in hand	.	.	.	.	2,000	
Bank balance	.	.	.	.	10,000	
Marketable securities	.	.	.	.	30,000	
Sundry debtors	.	.	.	.	90,000	
Stock and work-in-progress	.	.	.	.	106,000	
						238,000
<i>Less Current Liabilities</i>						
Sundry creditors	.	.	.	.	40,000	
Accrued expenses	.	.	.	.	8,000	
Current taxation	.	.	.	.	20,000	
						68,000
<i>Working capital</i>	.	.	.	.		170,000
<i>Fixed Assets (less depreciation)</i>						
Land and buildings	.	.	.	.	200,000	
Machinery and plant	.	.	.	.	250,000	
Office equipment	.	.	.	.	30,000	
						480,000
<i>Capital employed</i>	.	.	.	.		650,000
Permanent investments	.	.	.	.		50,000
<i>Total capital</i>	.	.	.	.		700,000
<i>Less Prior Charges</i>						
Mortgage debentures	.	.	.	.	200,000	
Preference shares	.	.	.	.	100,000	
						300,000
<i>Net worth of equity interest</i>	.	.	.	.		£400,000
<i>Net worth of equity represented by</i>					£	£
Ordinary shares	.	.	.	.	300,000	
Capital reserves	.	.	.	.	30,000	
Revenue reserves	.	.	.	.	50,000	
Retained profits	.	.	.	.	20,000	
						400,000

Working Capital

There is a statutory requirement that fixed assets shall be distinguished from current assets in published balance sheets. In effect, the balance sheet consists of a current part of general interest and a "fixed" part of interest mainly to shareholders and secured creditors. The current part contains a statement of current assets and liabilities and discloses either a surplus or a deficiency of working capital.

Current liabilities comprise debts existing at the date of the balance sheet which are either currently payable or will fall due for payment in the near future, such as claims of trade creditors and other third parties; fluctuating bank overdrafts and other unliquidated balances, accrued portions of expense items such as rents and insurance whether calculated on a time basis or otherwise, and provisions for any known liabilities whereof the amount cannot be established with certainty. Although the term "current liabilities" has no legal definition, the obligation to classify liabilities in the balance sheet to indicate clearly their general nature supports the general practice of showing current liabilities under a separate heading. A specimen grouping of current liabilities in a balance sheet would be:

- (a) Trade creditors and accrued expenses.
- (b) Fluctuating bank overdrafts.
- (c) Amounts due to subsidiaries.
- (d) Current taxation.
- (e) Dividends proposed (less tax).
- (f) Unclaimed dividends.

For internal use, as distinct from balance sheet purposes, more detailed analyses may be prepared of amounts owing to creditors, distinguishing between ordinary traders and public authorities, between debts incurred for trading purposes and those for capital expended, between debts large and small and between debts to which extended credit terms apply and otherwise. Standard ratios may be usefully derived to express the amount of purchases per £1 of sales and of creditors per £1 of debtors.

Although a separate heading has to be given for the net aggregate amount (after deduction of income tax) which is recommended for distribution by way of dividend, there is no obligation to show separately the dividend on each class of share or to set out as a separate item the amount of unclaimed dividends, although this is often done. When, as sometimes happens, preference dividends are paid up to a date prior to the end of the company's financial year, the dividends accrued, though undeclared, must be provided for and included in the aggregate figure shown. The general rule relating to taxation is that tax is deducted at the source of income and any arrangement to the contrary is void. The statutory requirement to state the net amount recommended as dividend is inconsistent with a further requirement, already noticed, that in respect of the profit and loss account there shall be stated whether or not the amount shown for dividends paid and proposed is for dividends subject to deduction of income tax.

Details must also be given of the aggregate amount of bank loans and overdrafts, and, where there are several bank accounts, some of which are in debit and others in credit, it is apparently not permissible to set these off against one another and to show the net amount in hand or overdrawn.

Current assets may be defined as cash and other assets, such as stock-in-trade, held for conversion into cash in the ordinary course of trade and claims on others, such as debtor balances, receivable in cash and amounts represented by short-term investments held as part of liquid resources. Current assets should be appropriately classified in the balance sheet as far as practicable in the order of their liquidity, or in reverse order according to the balance-sheet format, viz. :

- (a) Cash-in-hand;
- (b) Cash-at-bank;
- (c) Current debtors;
- (d) Bills receivable;
- (e) Stock-in-trade;
- (f) Short-term investments,

with the amount for stock-in-trade preferably detailed under the headings of raw material, work-in-progress and finished products. If, in the

opinion of the directors, any current assets have not a normal realizable value at least equal to the amount at which they are stated in the balance sheet, this fact must be stated by way of note or in a statement or note attached to the balance sheet.

Fixed Assets

Fixed assets are those which are held permanently for the purpose of earning revenue, for example, buildings, plant and machinery. They are not normally held for sale or conversion into cash, so that whereas short-term investments held as near-liquid resources are current assets, long-term investments held for their permanent earning power are fixed assets. Fixed assets outlive current assets and are really expenditure in suspense. As there is no precise rule which can be applied to determine whether assets are fixed or variable, marginal cases require consideration of such factors as the life of the asset, the rate and method of its use, the nature of the business in which it is used and the degree of liquidity attaching to the asset in case of need.

Fixed assets must be classified in the balance sheet under headings appropriate to the company's business, with a statement of the method by which their amounts are determined under each heading.

Depreciation of fixed assets does not arise to the extent that their cost of replacement is wholly or partly charged against provisions made for their renewal or charged directly against revenue. Apart from the amount of intangible assets and investments stated at their actual or estimated market value, the rule is that the amount of any fixed asset must be taken as the difference between its cost or valuation and the aggregate amount provided or written off for depreciation or diminishment in value since it was acquired or valued, as the case may be.

The aggregate cost or valuation and the aggregate amount provided or written off, as the case may be, for depreciation or diminishment of value must be disclosed in the balance sheet in respect of each class of fixed assets. This rule is relaxed in respect of assets whereof the figures relating to the period after 1st July, 1948, cannot be determined without unreasonable expense or delay. This relaxation permits items like loose tools and fixtures and fittings to be stated at a round figure estimate. In cases where inadequate price records make it impracticable in respect of fixed assets acquired before 1st July, 1948, to ascertain the details of their cost and of depreciation written off up to this date, the Act provides that the "net book value" of the assets at this date, less the amount of any sales, is to be taken as the value to be shown in the balance sheet of the remaining assets. In practice, the date of the last balance sheet before 1st July, 1948, is taken as the effective date in substitution for 1st July, 1948. Although the amounts written off fixed assets before this date may have been excessive, there is no requirement to show the excess amount as a reserve; but in order to give a true and fair view this should be shown. For the same reason, an indication of the date and source of a valuation should be given wherever practicable and where "net book values" are shown the balance sheet should make clear that it is a notional valuation as permitted by the Act.

In cases where full records are available of assets shown in the balance sheet at cost or valuation, the cost of any assets which are sold, apportioned if necessary, is deducted from the total cost and the corresponding figure of depreciation is also eliminated, so that the balance sheet shows the present position as if the assets sold had never existed. There is no need to make reference to the assets sold as their figures of cost and depreciation are no longer of interest. Incidentally, where assets have been sold or scrapped, the charge for depreciation shown in the profit and loss account does not usually equal the difference between this year's figure of aggregate depreciation and last year's figure. In cases where the replacement cost of assets is wholly or partly charged against provisions made for their renewal or charged directly against revenue, the balance sheet must state the means by which their replacement is provided for and the aggregate amount of the provision (if any) made for renewals and not used.

Companies generally satisfy more than the minimum legal requirements regarding disclosure in their balance sheets. Practice varies as between one company and another ; but, in general, the additional information gives the net amounts at cost of additions and sales of assets since the date of the previous balance sheet and also figures connecting the present amount of aggregate depreciation with the corresponding figure in the previous balance sheet. It is not usual to give information *in extenso* for each item as in the first example which follows, but rather to present a condensed statement of the general position as shown in the next example.

Plant and Machinery

		£	£	£	
At cost, from previous balance sheet.			100,000		
	Additions this year	20,000			
	Less sales	5,500			
		<u> </u>	14,500		
			<u> </u>		
			114,500		
Less aggregate depreciation					
	Per previous balance sheet . .	35,000			
	Per profit and loss a/c	7,500			
		<u> </u>			
		42,500			
	Less depreciation on sales . . .	2,700	39,800	74,700	
		<u> </u>	<u> </u>	<u> </u>	
		Cost	Net	Aggregate	Balance
		31st Dec.,	Additions	Deprecia-	31st Dec.,
		1952	this Year	tion	1953
1952	Fixed Assets	£	£	£	£
189,622	Freehold land and buildings.	231,216	—	46,514	184,702
143,907	Plant and machinery . .	369,912	38,265	236,219	171,958
18,792	Furniture fixtures and fittings	36,616	1,220	21,484	16,352
13,126	Motor vehicles	17,264	1,000	4,562	13,702
		<u> </u>	<u> </u>	<u> </u>	<u> </u>
365,447		655,008	40,485	308,779	386,714
		<u> </u>	<u> </u>	<u> </u>	<u> </u>
(Year 1952 Totals)		(655,424)	(15,286)	(305,263)	

Investments

Investments are made by industrial companies for a variety of reasons, and are regarded as current assets when held as part of the liquid resources of the company and as fixed assets when intended for permanent holding.

Short-term investments use the earning power of surplus cash resources until such time as these resources are needed for internal use. Unless surplus funds are segregated in this way, there is always the chance that they will become locked-up in the business in the form of trading assets, probably unrealizable when cash is wanted. Invested capital must, however, be safeguarded.

Current taxation requirements which absorb the major portion of profits require liquid resources in order to meet heavy cash payments in due course. For this purpose, tax reserve certificates are issued by the Treasury in convenient units which, in effect, are short-dated Government securities giving yields to taxpayers which compare favourably with those otherwise obtainable in the short-term deployment of funds. The fourth series of issue made on 14th July, 1954, carries an interest rate of one per cent p.a. for a period up to two years, free of all taxation, *i.e.*, income tax, profits tax and surtax, and the period during which the certificate can be tendered in payment of tax is not limited to five years as were the first two issues.

A company may make long-term investments in order to extend or augment existing business interests by acquiring the controlling interest in another company or by forming a subsidiary company. Advantages sought may include the assurance of ample and regular supplies of raw material and wider markets for finished products. Investments of this kind are considered more fully when discussing holding companies and group accounts. In other cases, long-term investments may be made to conserve funds for the replacement of assets or the redemption of preference shares or debentures. Annual contributions may be made to sinking funds and invested, together with interest earnings, in order to provide the capital sum required in due course.

When a company purchases its own debentures in the open market, the amount is preferably not shown as an investment on the assets side of the balance sheet, but as a deduction from the amount disclosed in respect of these obligations on the liabilities side of the balance sheet, with any other entries necessary to cover any discount or premium involved.

Separate headings are required in the balance sheet for the aggregate amounts, respectively, of:

- (a) Trade investments.
- (b) Investments other than trade investments, for which there has been granted a quotation or permission to deal on a recognized stock exchange.
- (c) Investments other than trade investments, for which there has been granted a quotation or permission to deal on a reputable stock exchange abroad.
- (d) Unquoted investments.
- (e) Investments in subsidiary companies.

As for fixed assets, the method or methods of arriving at the value of investments must be stated. Investments may be stated at their aggregate cost or valuation with the aggregate amount written off since their date of acquisition or valuation. Alternatively, their market value may be shown or, where no market value is available, their market value as estimated by the directors. Where any investments are stated, whether separately or collectively, at market values in excess of their Stock Exchange value, these values must also be stated in the balance sheet or by way of note or in a statement or report annexed. This last requirement recognizes that a Stock Exchange quotation, possibly resulting from restricted market dealings, is not necessarily a reflection of true market value for substantial transactions.

It does not matter for the purposes of the balance sheet whether a trade investment is quoted or not, for its market value need not be stated. A trade investment is not defined in the Act, but the term apparently covers an investment in an associated company with which the company trades where the investment is insufficient to give control of its operations as in the case of a subsidiary company.

Many companies apparently prefer to show all their permanent investments under a separate general heading, distinct from fixed or current assets. When any investment is held for a specific purpose, as part of a redemption fund, for example, it should be distinctively shown under an appropriate heading. There is no requirement to disclose the names of individual investments, although preferably these should be scheduled.

Trade investments in subsidiary companies, whether covering shareholdings or indebtedness, have to be shown in the balance sheet separately from all the other assets of the company, and, on the other hand, the aggregate amount of indebtedness to the company's subsidiaries has to be set out separately from all its other liabilities. It may be preferable to deal with interests in subsidiaries and associated companies under a separate heading from fixed and current assets and to distinguish between investments and current balances, as, probably, the company's usual terms of trade would not be invariably applied in dealings with subsidiary and associated companies.

Although there is no compulsion to furnish shareholders with full details of the acquisition by a company of other businesses, it is desirable that prompt information should be given to shareholders of such matters as purchase consideration, balance sheet position, earnings and dividend record, especially where the transactions are relatively large in relation to the company's resources. If the deal is exceptional in amount or the directors are personally concerned in any way, an option to purchase should preferably be obtained and submitted to an extraordinary general meeting for approval to exercise it.

Company Loans

The balance sheet must show loans made, guaranteed, or secured by the company or any of its subsidiaries to anyone who has, during the period covered by the accounts, been a director or other officer of the company. Balance sheets accordingly disclose the amounts of such

loans at the beginning of the year, advanced during the year, repaid during the year and outstanding at the end of the year. This information is not required in the case of a company which lends money in the ordinary course of business or in a case which concerns a loan not exceeding £2,000 to an employee of the company which is certified by the directors to have been made in accordance with the company's actual or proposed practice in this respect. These exceptions do not apply to a loan made by the company under a guarantee from or on a security provided by the company or any of its subsidiaries.

In the interests of ensuring that the conduct of business by directors is irreproachable, loans to a director of a company or of its holding company are, subject to certain exceptions, unlawful, as also are guarantees or securities given in this connection. This rule does not apply to an exempt private company, or to anything done by a subsidiary if the director is its holding company, or, of course, to loans made in the ordinary course of business by a company whose ordinary business includes the lending of money. Neither does the rule apply to loans made to provide a director with funds to meet expenditure for the benefit of the company, nor to enable him to perform his duties to the company, provided either the prior approval is given of the company in general meeting at which full disclosure is made, or the arrangement has been made expressly on the condition that if the approval is not given at or before the next following annual general meeting, repayment must be made or the liability under the guarantee or security discharged within six months after that meeting. If the approval of the company is not so given, the directors authorizing the transaction are jointly and generally liable to indemnify the company against any resultant loss arising. As the Cohen Committee so rightly pointed out, "If the director can offer good security, it is no hardship for him to borrow from other sources. If he cannot offer good security, it is undesirable that he should obtain from the company credit which he could not obtain elsewhere."

Development Expenditure

Continuous development expenditure in such activities as mining is invariably capitalized in the balance sheet for gradual amortization against eventual operational profits. In other cases when appreciable expenditure is incurred in development work, such as preliminary constructional work, or in developments of a scientific or design nature, or perhaps even in promoting an advertising campaign, whereof corresponding benefits are likely to arise in due course, the amount may be temporarily carried in the balance sheet as an asset for gradual amortization within a reasonable period. Expenditure of a capital nature on scientific research attracts an investment allowance and is allowed as an expense for taxation purposes over a period of five years.

When continuous development expenditure is undertaken which is not represented by tangible assets, the amount is usually charged against the current years' revenues. Expenditure of a revenue nature on scientific research is allowed as a deduction from profits for taxation

purposes. The fact that the future profitability of development expenditure is not easy to forecast makes it more important than ever to exercise close control in order to ensure that wasteful or extravagant expenditure is never incurred.

Future liabilities for new capital expenditure are clearly an important item for creditors and shareholders because of their bearing upon future liquidity. Accordingly, the Act requires disclosure, where practicable and material, of the aggregate amount or estimated amount still to be provided in respect of contracts for capital expenditure. Disclosure is obligatory only when there exists an actual contract—an intention on the part of the Board to enter into a contract for new capital expenditure is appropriately referred to in the directors' report. Where contingent liabilities exist, as in the case of constructional works, and the precise cost is not available and if, in fact, no legal liability exists until progress payments are certified by an architect or an engineer's certificate, it is preferable to deal with the matter by a note in the balance sheet.

Goodwill and other Intangible Assets

Goodwill has been described as the advantage, expressible in terms of prospective future super-profits, that is obtained by continuing to carry on, and being entitled to represent to the world as carrying on, an established business. The prospects of future super-profits are assessed in relation to past performance and the degree of risk involved in their maintenance in excess of a normal return on the total capital to be employed. As explained later in the chapter on share valuations, the value of goodwill is in theory limited on the high side to the amount of the present worth of a perpetual annuity equivalent in amount to annual anticipated super-profits, but in practice usually to a limited number of years' purchase of prospective super-profits. On the other hand, negative goodwill or badwill exists when a business is something of a general liability rather than a lucrative asset, but the element of "badwill" is limited, as might be expected, to the difference between the aggregate value of net worth as disclosed by the balance sheet and that of the realistic break-up values of the underlying assets. Many factors need consideration as affecting the degree of risk involved in assessing goodwill—economic change, fashion trends, changes in directorial and managerial abilities, and so on.

Where the cost of goodwill, patents and trade marks is known, or is ascertainable from the books of the company or from other sources, such as documents which refer to property transactions, the Act requires a minimum disclosure of their aggregate amount, so far as not written off, with an indication of the method of valuation, *e.g.*

" Goodwill, Patents and Trade Marks,
at cost, less amount written off—£60,000."

Fictitious assets of other kinds have also to be separately disclosed in the balance sheet so far as they are not written off, although they may be conveniently grouped under a main heading, *e.g.*

Fictitious assets not written off :	£
Preliminary expenses	10,000
Expenses of issue of shares or debentures	3,000
Commission in respect of shares or debentures	500
Discount allowed in respect of debentures	2,000
Discount allowed in respect of shares	4,500
	<hr/>
	£20,000
	<hr/>

Many balance sheets show merely a nominal value of £1 in respect of goodwill and other intangible assets which have been written-down.

Borrowed Funds

The amount represented by debentures was formerly treated as if it was part of the capital of the company by placing it next to the amount of share capital on the "liabilities" side of the balance sheet. As debenture holders normally represent long-term creditors, the amount is nowadays stated under the heading of "debentures" or "long-term liabilities", quite distinctly from capital and current liabilities. There is a general requirement to disclose in the balance sheet the general nature of liabilities, including debentures and, in particular, any redeemable debentures which the company has power to re-issue. Where any of the company's debentures are held by a nominee or a trustee of the company, the nominal amount of the debentures and the amount at which they are stated in the books of the company must be disclosed in the balance sheet. Where a liability of the company is secured otherwise than by operation of law on any assets of the company, disclosure must be made of the fact that the liability is secured, although there is no need to specify the asset on which it is secured. Preferably, the redemption date of debentures is disclosed, especially when it is approaching, for example : 5 per cent debentures, repayable in 1975 at £102½ (secured), £100,000. Interest accruals are shown as "current liabilities" and are not, therefore, added to the amount of debentures outstanding. The outstanding amount of any unsecured loans, which are, in effect, naked debentures, may be shown separately in the balance sheet under the general heading of "long-term liabilities".

When borrowed monies represented by debentures or bank overdrafts are used and a greater recourse is made to credit terms, the shareholders' equity tends to become vulnerable if profits decline or trade creditors reduce their credit terms to such a degree that the company finds difficulty in paying interest charges on borrowed capital.

For sound capitalization, the ratio $\frac{\text{Fixed Assets}}{\text{Net Worth}}$ should be fractional if risk capital is to cover fixed assets with some margin for working capital. For unfettered development, a high ratio of shareholders' to creditors' equity is desirable, that is, the relationship $\frac{\text{Outside Liabilities}}{\text{Net Worth}}$ needs to be a minimum.

Capital

The capital supplied by shareholders involves a corresponding liability on the part of the company towards those shareholders and the amount is therefore shown on the liabilities side of the balance sheet. Shareholders, with the possible exception of redeemable preference shareholders, are, in effect, tied creditors of their company, as it is only when the company is liquidated and after all debts owing to others have been fully paid that shareholders are entitled to repayment of such part of their invested capital as remains intact.

A full summary of the capital of the company must be given in the balance sheet, showing:

- (I) The nominal or authorized amount of capital with which the company was registered and its division into shares, indicating the denomination of each class of share.
- (II) The issued or subscribed capital and if this has not been called up, then the amount of the called-up capital must be shown, from which the amount of any calls in arrear should be stated as a deduction.

The summary of a company's authorized capital is clearly less important than the particulars of its issued capital, for the former is merely prospective whereas the latter is factual. The summary of authorized capital is shown in the balance sheet as a memorandum and not as part of the total stated on the liabilities side of the balance sheet, for authorized capital is only effective and represented by net worth in so far as it is issued and paid up.

Details of authorized and issued capital are often shown as follows:

	<i>Authorized</i>	<i>Issued and Fully Paid</i>
	£	£
7% cumulative preference shares of £1 each	500,000	500,000
Ordinary shares of £1 each	300,000	250,000
Unclassified shares of £1 each	200,000	—
	<hr/>	<hr/>
	£1,000,000	£750,000

Where shares are only partly paid up and where calls are in arrear, this arrangement needs modifying in the interests of clarity:

<i>Authorized and Issued Capital</i>	<i>Authorized</i>	<i>Issued</i>
	£	£
7% cumulative preference shares of £1 each	500,000	500,000
Ordinary shares of £1 each	300,000	250,000
Unclassified shares of £1 each	200,000	—
	<hr/>	<hr/>
	£1,000,000	£750,000
	<hr/>	<hr/>
<i>Paid-up Capital</i>	£	£
7% cumulative preference shares of £1 each		500,000
Ordinary shares of £1 each :		
200,000 fully paid	200,000	
50,000 10s. called	25,000	
Calls in arrear	200	
	<hr/>	<hr/>
		224,800
		<hr/>
		£724,800

This arrangement shows the total amount paid up on each class of capital. Calls in arrear are deducted from the paid-up capital so as to show the net total capital paid up. Calls paid in advance would be shown as additions. They do not appear in the amounts respectively shown for debtors and creditors. Where a company pays interest on monies received in advance of calls and charges interest on calls in arrear, the interest, whether receivable or payable, does not appear in the summary of capital. Interest payable is included under the heading of current liabilities if it remains unpaid at the date of the balance sheet, whereas credit for interest receivable is usually taken when it is actually received. So far as the information is not given in the profit and loss account, any share capital on which interest has been paid out of capital during the financial year and the interest rate must be specified in the balance sheet.

Where a company has by special resolution in accordance with the Act, determined that any portion of its uncalled share capital shall not be capable of being called up except in the event and for the purposes of the company being wound up, the amount of this reserve liability is conveniently indicated by means of a note following upon the statement of share capital.

The existence of options to purchase further shares may affect the future interests of shareholders. Details of these should be given either in the balance sheet or by way of note or in a statement or report annexed. The details required comprise the number, description and amount of any shares in the company which any person has an option to subscribe for, the price to be paid and the period during which the option is exercisable. This information may be shown by way of note inserted after the details of share capital to make apparent the relation of the option to unissued capital.

Any premiums received on the issue of shares are transferred to a share premium account, which must be shown in the balance sheet and treated as if it were paid-up share capital. Such premiums cannot be used for payment of dividends as they are by implication capital reserves. The premiums are essentially capital receipts intended for retention in the business for the purpose of earning profits. These sums may now be applied only in paying up unissued shares to be distributed as fully-paid scrip ; in writing off preliminary expenses or the expenses, commissions, or discounts on any issue of shares or debentures, or in providing for any premium payable on the redemption of redeemable preference shares or debentures. Otherwise the provisions relating to reduction of capital apply to premiums on shares as if the premiums were paid-up share capital. Where shares are issued for a consideration other than cash, it may be necessary to have a valuation made to assess the share premiums. The share premium account is in the nature of a capital surplus and is reduced by any authorized expense being set against it, without any resulting reduction of the amount of issued share capital.

Provisions and Reserves

A reserve is an amount in the nature of a surplus and excludes any

amount which is really a provision, for provisions either constitute outside claims on the company or represent the amount written-off fixed assets over their useful working life. The legal term "provision" means any amount:

- (a) Written-off or retained towards providing for depreciation, renewals or diminution in value of assets, except that an amount written-off in relation to fixed assets after 1st July, 1948, which is in excess of an amount considered as reasonable by the directors is regarded as a reserve and not as a provision.
- (b) Retained towards providing for any known liability, including all liabilities in respect of expenditure contracted for and all disputed or contingent liabilities, whereof the amount cannot be determined with substantial accuracy, except that any excess over an amount considered by the directors as being reasonably necessary is to be treated as a reserve and not as a provision.

Whether an amount is in fact a liability, which can be actually ascertained or reasonably estimated, or a provision for an actual, disputed, or contingent indebtedness whereof the amount cannot be determined with substantial accuracy, the amount so set aside is not available for the benefit of shareholders and is outside the definition of a reserve.

So far as amounts are retained which cannot be determined with substantial accuracy by way of providing for any known liability, the requirement as to over-provision means that if, say, £5,000 is provided for this purpose and the actual liability is eventually £4,000, the excess of £1,000 must be dealt with as a revenue reserve and the existence and movements of the amounts concerned must be disclosed in the published accounts.

The Act imposes a statutory obligation on companies to disclose under separate headings in the balance sheet, the aggregate amounts respectively of capital reserves, revenue reserves and provisions (other than provisions for depreciation, renewals or diminution in value of assets), so far as the items are material. Any reserve or provision which has the effect of distorting the result should be considered as material from the point of view of disclosure. The Board of Trade has power to dispense with the separate statement of provisions where they are satisfied that it is not in the public interest and could prejudice the company and when this dispensation is granted the relevant heading must so indicate. Also, the source of any material increase and the application of the amounts of any decrease during the financial year, under each of these headings or their sub-headings where stated, must be shown in the balance sheet, unless given in the profit and loss account or in a statement or report annexed thereto. In addition, disclosure is also required of the application of any surplus between the amount of provision in the opening accounts and the aggregate of the sums since applied and still retained for the purposes contemplated.

When it is certain that a liability will arise in connection with an event, but the amount involved cannot be fixed with substantial

accuracy, an amount is set aside as a provision. When it is uncertain whether a liability will arise at all, the general nature of the contingent liability must be stated by way of note or in a statement or report annexed to the balance sheet, unless, of course, it is otherwise shown, with, where material, the aggregate or estimated amount of the contingent item. In particular, the amount of any arrears of cumulative dividends on the company's shares and the period for which the dividends, or where applicable, each class of them, are in arrears must be so disclosed and the amount stated before deduction of income tax, except in the case of tax-free dividends when the amount is shown free of tax and the fact stated.

As exemplified later, taxation appropriations may be particularly involved, for tax assessments are not necessarily computed on profits calculated in accordance with business principles, nor are they all assessed on the income of the trading period covered by the published accounts, whilst due dates of payment may be, and often are, outside the accounting period to which they relate, and certain non-operating income may suffer tax by deduction before it is received. These complications may be avoided by making appropriations of profit to cover the whole of the tax assessable on the basis of the published accounts.

The Companies Act does not contain any specific requirements regarding the disclosure of income tax assessments in the balance sheet, but the basis on which the account, if any, set aside for United Kingdom income tax is computed must be disclosed either in the balance sheet or by way of note or in a statement or report annexed. The profit and loss account is required to show the amount of the charge for United Kingdom income tax and other United Kingdom taxation on profit, including, where practicable, as United Kingdom income tax, any taxation imposed elsewhere to the extent of the relief, if any, from United Kingdom income tax and distinguishing between income tax and other taxation. Other taxation on profit refers to profits tax, excess profits tax and excess profit levy, but not, of course, to purchase tax, as this is not a charge on profits.

So far as relief is given against United Kingdom tax, for example, by way of credit under a double taxation agreement between the two countries, the foreign tax must be shown as though it was United Kingdom tax. Thus, the amount of United Kingdom tax is shown that would have been chargeable if no foreign tax had been attracted. Where, however, part of the foreign tax is not the subject of relief for United Kingdom tax, the amount not allowed cannot be shown as United Kingdom tax ; but as there is no statutory requirement that it need be disclosed, it may be deducted before arriving at the opening figure of trading profit shown in the published profit and loss account. In the interests of full disclosure of earnings, the amount should be shown and appropriately identified so that it cannot be confused with United Kingdom taxes.

Current taxation is properly shown in the balance sheet under the heading of current liabilities, but there is a difference of practice as to the place where the amount of future income tax is shown in the balance

sheet. In some balance sheets, reserves for future taxation are shown under the heading of capital and reserves and thus appear as part of the shareholders' equity, to whom the amount may appear available for distribution. Of course, as a reserve for future taxation, wherever it is shown on the liabilities side of the balance sheet, is necessarily represented on the other side by fixed or current assets or preferably by tax reserve certificates, the amount of the reserve is currently part of the net worth of the company. Although it is likely to be eventually eliminated by future taxation charges, the supposition is that corresponding amounts will be available from future earnings in order to maintain an appropriate reserve. The reserve does, therefore, form part of the shareholders' equity on a going concern basis. If shares are sold on the basis of a valuation of net worth, the vendor is certainly unlikely to suggest making any deduction from the price as the value of the gross assets will have been reduced by the amount of the company's liabilities, including the legal liability for taxation, in arriving at the net figure. For his part, the purchaser would naturally have regard to the prospect of continuing profits in the future. In view, however, of the special features attaching to a reserve for future income tax as distinct from a free reserve, there is an increasing tendency for amounts set aside for future taxation to be shown as a separate item in the balance sheet under the heading of deferred liabilities, or as a separate item entitled "future taxation", in an intermediate position between "current liabilities" and "capital and reserves".

As liability for profits tax is co-terminous with the accounting period, the need to provide reserves for future taxation in respect of profits tax does not arise. On the other hand, the possible incidence of future distribution charges for profits tax presents a problem in considering the extent of disclosure required in balance sheets. A company which has enjoyed non-distribution relief cannot rid itself of a prospective contingent liability to a distribution charge for profits tax. This in law only becomes a charge for the year for which a distribution is made in excess of that year's profits, although it is assessed by reference to the effective amount of non-distribution relief granted for earlier years. It is normally unlikely that the accumulated distribution relief will ever result in a substantial distribution charge, except in a liquidation which is, of course, not contemplated in a balance sheet prepared on a going-concern basis, because it is unusual for companies to make distributions in excess of the year's profits. However, it cannot be assumed that the company will not make and distribute capital profits or make distributions from reserves. Changing circumstances and uncertain knowledge of future events make it impracticable to compute the amount of future distribution charges which may arise, but the amount of distribution relief which has been effectively accumulated is, of course, precisely ascertainable. Whilst the existence of an accumulated amount of non-distribution relief constitutes neither an actual nor a contingent liability for future profits tax at the date of the balance sheet, it seems desirable, although maybe not essential legally, that the effective amount of the accumulated relief should be stated, or at least referred to, in the balance sheet,

because the fact that the company is vulnerable to future distribution charges for profits tax is a material factor in assessing the true value of the reserves shown in its balance sheet on a going-concern basis and, more so, if a liquidation is contemplated.

Initial allowances in respect of capital expenditure are available under the Finance Acts in certain cases giving relief against the income of the initial year in which the capital expenditure is incurred, with, correspondingly, reduced allowances for wear-and-tear in future years until such time as the total expenditure is amortized. In order to avoid any overstatement of profits by reason of the application of an initial allowance, the practice is frequently adopted of making adjustments in the accounts by opening a taxation equalization account to hold the amount of the initial taxation allowance for gradual amortization over future years. The taxation equalization reserve is often shown separately in the balance sheet under the heading of deferred liabilities. The initial allowance is, in effect, a temporary interest-free loan from the Government.

Other Requirements

There must also be stated by way of note or in a statement or report annexed to the balance sheet, if not otherwise shown, the basis on which foreign currencies have been converted into sterling, where the amount of the assets or liabilities affected is material.

Finally, comparative figures are required of all amounts in the balance sheet, giving the corresponding amounts at the end of the immediately preceding financial year.

PROTECTION OF SHAREHOLDERS' INTERESTS

As an important feature of the Companies Act, 1948, is to require a more complete disclosure of information regarding the activities of companies, its provisions have been effective in enlarging the protection given to minority interests. A closer insight into the affairs of companies has been given by the requirements of the Act in regard to accounts and the disclosure of financial arrangements between companies and their directors, whilst the requirements of the Act as to meetings are designed to ensure that shareholders have adequate notice of business to be discussed so that a dissentient minority has time in which to prepare itself for appropriate action. In addition, the provision of the Act respecting investigations enables dissentient interests to obtain the assistance of the Board of Trade into matters which seem to require expert investigation and, in particular, certain provisions of the Act are specifically concerned with the protection of minority rights.

The Board of Trade may appoint inspectors at public expense, on the application either of not less than 200 members or of members holding not less than 10 per cent of the shares issued, in order to investigate the affairs of a company, or past or present related companies, in circumstances suggesting wrong-doing or the concealment of reasonable information from shareholders. Moreover, the appointment of an inspector is mandatory if the company passes a special resolution

that its affairs ought to be investigated or if the Court by order so directs. The general procedure in such cases and the circumstances under which inspectors are also appointed by the Board of Trade to investigate the ownership of a company's shares and debentures and require information regarding nominee holdings, with power to impose restrictions on shares and debentures, is considered in some detail in Chapter 30 dealing with share-bids.

In addition to powers reserved by the Companies Act for the protection of shareholders, other provisions of the Act provide for their continuous protection through the requirement that every company shall, at each general meeting, appoint an independent person or firm as auditor to hold office until the conclusion of the next annual general meeting. Except in the case of an exempt private company, the person appointed must be qualified for appointment as auditor of a company in accordance with the requirements of the Act. Auditors have a right of access at all times to the books and accounts and vouchers of the company and are entitled to require from the officers of the company such information and explanations as may be thought necessary for the performance of their duties. They are required to make a report to the members on the accounts examined by them and on every balance sheet, every profit and loss account and all group accounts laid before the company in general meeting during their tenure of office, and their report has to be read before the company in general meeting and left open to the inspection of any member. Auditors are entitled to attend any general meeting of the company, to receive all communications relative thereto which any member of the company is entitled to receive and to be heard at the meeting on any part of the business which concerns them as auditors. At any annual general meeting, a retiring auditor who remains qualified, and has not given the company notice in writing of his unwillingness to be re-appointed, must be re-appointed without any resolution being passed, unless a resolution has been passed at that meeting and special notice has been given appointing another person, or providing expressly that he shall not be appointed. In such an event, the retiring auditor is entitled to a copy of the proposed resolution and to make representations in writing to the company and to be heard orally at the meeting.

Moreover, the interests of shareholders are well protected by the vigilance and integrity of the Stock Exchange and the undoubted influence of a free and independent financial press.

It only remains to add that in certain events a person may be deprived by the Court from holding a directorship or being in any way concerned with company management, for a period up to five years, upon an order for that person's suspension being made on application to the Court by the liquidator, or any past or present member or creditor of a company. Application may be made where a person is convicted on indictment of any offence in connection with the promotion, formation or management of a company or where in the course of a winding up, it appears that a person has been guilty of fraudulent trading, whether convicted or not, or of any fraud or breach of duty in connection with the company whilst one of its officers.

CHAPTER 13

FINANCIAL ANALYSIS

Working Capital

WORKING capital is measure by a surplus of current assets over current liabilities, whereas an excess of current liabilities over current assets denotes a deficiency of working capital. The figure of working capital thus disclosed is not always a reliable measure of solvency or the ability duly to discharge trade obligations, so the need arises to distinguish between liquid or near-liquid assets, being those readily available for the discharge of current liabilities, for example cash, bank deposits, realizable securities and trading assets, being those held or produced in the course of business for conversion into liquid assets, for example stock-in-trade and debtors, although short-time debtors may be regarded as near-liquid assets.

The need to keep a proper balance between liquid assets and trading assets is exemplified by the following figures:

	(A)		(B)	
<i>Current Assets</i>	£	£	£	£
Cash	125,000			
Debtors	250,000		250,000	
Stock-in-trade	500,000	875,000	650,000	900,000
<i>Current Liabilities</i>				
Sundry creditors		100,000	100,000	
Bank overdraft		—	25,000	125,000
Working capital		<u>775,000</u>		<u>775,000</u>

Whereas position (A) discloses a healthy liquid position, the contrary is the case in position (B), although the amount of working capital is the same, because the bank account has been overdrawn against an increase in stock-in-trade already apparently excessive.

Many business losses arise as the result of failure to predetermine working capital requirements for a planned increase in output, or because of failure to appreciate the extent to which existing resources are likely to be absorbed by a programme of capital expenditure, as well as from inadequate or delayed reaction to sharply changed circumstances, such as unbalanced supplies giving rise to excessive working capital requirements, or from a decline in sales which slows down the rate of turnover of working capital. It will be appreciated, therefore, that examination of the figures of working capital gives information regarding the solvency of the company; the possibility of financing expansion, wholly or partly, from existing resources; the existence of any unremunerative surplus of working capital, and whether or not working capital is being turned over at a sufficiently high rate for profitable operations.

Working capital is, for this reason, often referred to as circulating capital. The faster working capital is turning over, or the greater the number of revolutions it makes in terms of annual sales, the better. A useful index can be obtained, expressed as revolutions-per-annum of working capital, by dividing the projected annual sales. Due regard should be given to the secular trend of working capital. Examination of the percentage distribution of working capital among its various components serves as a further guide.

<i>Liquid Assets</i>	£	£	%	%
Cash	50,000		10	
Short-term debtors	100,000		20	
	<hr/> 150,000		<hr/> 30	
Less short-term creditors	100,000	50,000	20	10
	<hr/> 400,000		<hr/> 80	
<i>Trading Assets</i>				
Raw material	200,000		40	
Work-in-progress	175,000		35	
Finished stocks	25,000		5	
	<hr/> 400,000		<hr/> 80	
Long-term debtors	50,000	450,000	10	90
	<hr/> 450,000		<hr/> 90	
<i>Working capital</i>		<hr/> 500,000		<hr/> 100
		<hr/>		<hr/>
		£		
Sales to date		600,000		
<i>Pro rata</i> sales for year		950,000		
		<hr/> 950		
Working capital—revs. per annum		500		1.90 r.p.a.

In order to complete the picture, current sales may be expressed as a percentage of break-even sales for the year to date. For example, assuming break-even sales for the period of £500,000, the sales index would be $\frac{600}{500} \times 100$ per cent = 120 per cent.

Persistent shortage of working capital amounts to overtrading. Often the shortage arises gradually and for a time imperceptibly as the company continues to expand. This expansion, entailing, as it does, a delayed cash return for expenditure incurred, particularly when this is of a capital nature, involves a continual diminution of liquid resources, a rising indebtedness to creditors with subsequent resort to bank overdrafts to the limit obtainable, and possible recourse to building mortgages. Pressure on debtors for early payment may impair good business relations, even when accompanied by extra cash discounts, which reduce still further the cash margin. Difficulty in paying wages and salaries, the submission of *pro forma* invoices by creditors before material supplies can be obtained and resulting interruption of production, not to mention taxation demands in respect of previous trading periods, may well lead to an arrangement with creditors. Even if these troubles can be weathered, the uncertainty element tends to upset morale and dislocate production, so that overall productivity decreases and output, instead of increasing, falls below the break-even

point. In the event of a general trade recession at this juncture, heavy stocks in hand may become "frozen", difficulty may be experienced in collecting book debts and creditors will become more insistent on obtaining payment of their account. An inherent danger exists when the ratio of trading assets to liquid assets is high, for a sudden fall in prices could easily place the company in jeopardy. Failing an arrangement with creditors, there may be a liquidation, or, at least, if debenture holders are concerned, the appointment of a receiver and manager. Notwithstanding the dangers of over-trading, the unfortunate fact is that many companies nowadays are forced to accept some degree of risk in over-trading in order to make progress. Whilst risks which may involve set-backs under adverse circumstances may be accepted with due appreciation of the hazard involved, those which imply extinction if plans go wrong should never be taken.

The opposite condition to over-trading is, of course, under-trading. As trade falls off, cash continues to come in at the old rate for a while, and the liquid position is temporarily maintained by the buffer of depreciation charges which are not represented by cash outgoings and by inroads being made into stocks-in-hand. As trade declines to below break-even point, the cash position becomes more difficult when money is drained out of the business without any corresponding return. If the business is caught in a general trade recession, expense must be reduced as far as possible in order to offer more competitive selling prices. Increased prices at this stage will certainly accelerate the decline of turnover. If cost reduction is unduly delayed, the liquid capital position will deteriorate to such an extent that, when the tide of trade changes round, a fictitious state of over-trading may arise unless more capital can be introduced. This can only be to the detriment of the existing shareholders. Thus the danger of under-trading lies partly in the fact that it tends to generate future over-trading, by reason of the reduced volume of liquid resources available. Of course, under-trading may arise also in times of normal business activity, due to over-capitalization, increased competition, decline in product quality, or excessive costs reflected in unrealistic prices. The symptoms require early managerial recognition so that corrective action may be taken before the position becomes overwhelming.

Daily Control Statement

Useful information for management can be given in the form of a daily control statement (see Table 17), which covers the position regarding sales orders and deliveries ; stocks, purchases and issues ; and debtors, creditors and cash. The statement exemplified is based on the double-entry principle, and, accordingly, cross-references are shown. Completion of the statement requires a daily analysis of the raw material and other cost factors of sales, although companies which do not employ standard costing will probably be unable to supply this information without first making an improvement in their organization. When the statement is regularly compiled on a daily basis, one may be assured that office routine is up to date and that information is available to control stocks and work-in-progress and the flow of cash.

TABLE 17
DAILY CONTROL STATEMENT

<i>Sales Orders and Sales</i>	<i>Total</i>	<i>Raw Material Content</i>	<i>Purchased Components Content</i>	<i>Direct Labour Content</i>	<i>Gross Margin</i>
Sales order balances at Sales orders since received	£	£	£	£	£
Net invoiced sales Total	(A)	(B)	(C)		
Sales orders in hand					
<i>Stock, Purchases and Invoices</i>	<i>Total</i>	<i>Raw Material Content</i>	<i>Purchased Components Content</i>	<i>Mainten- ance Materials</i>	
Opening balances of : Stocks in hand Work-in-progress materials Goods since received	£ (D)	£	£	£	£
Material content of net invoiced sales and maintenance materials used Totals			(B)	(C)	
Estimated balance of stocks, exclud- ing labour and overheads on work- in-progress					
<i>Debtors, Creditors and Cash</i>	<i>Sales Ledger Balances</i>	<i>Bought Ledger Balances</i>	<i>Nominal Ledger</i>	<i>Bank</i>	
Opening balances Subsequent debtors and creditors Subsequent payments	£ (A) (E)	£ (D) (F)	£ (G)	£ (E) (F) (G)	
Balances					

Sources and Application of Funds

Whilst the investor can anticipate receiving only occasionally comparative figures showing movements in capital accounts, the business manager, with the realization that the balance sheet represents but a momentary picture, requires regular statements of actual and projected movements in capital accounts, analysed to disclose variation of working capital, the sources and application of funds and changes in liquidity, as exemplified below:

MONTHLY BALANCES

	Jan.	Feb.	Mar.		Jan.	Feb.	Mar.
<i>Liabilities</i>	£	£	£	<i>Assets</i>	£	£	£
Shares . . .	300,000	300,000	300,000	Buildings . .	100,000	100,000	100,000
Reserves . .	100,000	100,000	100,000	Plant . . .	200,000	200,000	220,000
P/L a/c . . .	20,000	25,000	35,000	Equipment . .	10,000	10,000	10,000
Current tax .	4,000	2,000	—	Work-in-progress .	50,000	60,000	65,000
Deprec'n a/c .	40,000	43,000	46,000	Stock-in-trade .	30,000	35,000	40,000
Creditors . .	15,000	20,000	25,000	Debtors . . .	60,000	75,000	81,000
Bank o'draft.	—	—	10,000	Cash	29,000	10,000	—
	<u>479,000</u>	<u>490,000</u>	<u>516,000</u>		<u>479,000</u>	<u>490,000</u>	<u>516,000</u>

(1) Variation of Working Capital

	Since Jan.	Since Feb.
<i>Current Assets</i>	£	£
Work-in-progress	10,000	5,000
Stock-in-hand	5,000	5,000
Debtors	15,000	6,000
Cash	— 19,000	— 20,000
	<u>11,000</u>	<u>— 4,000</u>
<i>Current Liabilities</i>		
Current taxation	— 2,000	— 2,000
Creditors	5,000	5,000
	<u>3,000</u>	<u>3,000</u>
Working capital variation	<u>8,000</u>	<u>— 7,000</u>

(2) Sources of Funds

	Since Jan.	Since Feb.
	£	£
Profit	5,000	10,000
Depreciation	3,000	3,000
Creditors	5,000	5,000
Bank overdraft	—	10,000
Cash account decrease	19,000	10,000
	<u>32,000</u>	<u>38,000</u>

(3) Application of Funds

	Since Jan.	Since Feb.
	£	£
Taxation payments	2,000	2,000
Additional plant	—	20,000
Extra work-in-progress	10,000	5,000
Extra stock-in-trade	5,000	5,000
Debtors	15,000	6,000
	<u>32,000</u>	<u>38,000</u>

The sources and application of funds may also be shown as follows:

(2a) *Sources of Funds*

	<i>Since Jan.</i>	<i>Since Feb.</i>
	£	£
Profit	5,000	10,000
Depreciation	3,000	3,000
Working capital decrease	—	7,000
	<u>8,000</u>	<u>20,000</u>

(3a) *Application of Funds*

	<i>Since Jan.</i>	<i>Since Feb.</i>
	£	£
Additional plant	—	20,000
Working capital increase	8,000	—
	<u>8,000</u>	<u>20,000</u>

(4) *Liquid Assets Ratio*

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>
	£	£	£
<i>Liquid Assets</i>			
Cash	29,000	10,000	— 10,000
Short-term debtors	60,000	75,000	81,000
	<u>89,000</u>	<u>85,000</u>	<u>71,000</u>
Trade creditors	15,000	20,000	25,000
Taxation	4,000	2,000	—
	<u>19,000</u>	<u>22,000</u>	<u>25,000</u>
<i>Net liquid assets</i>	<u>70,000</u>	<u>63,000</u>	<u>46,000</u>
<i>Trading Assets</i>			
Work-in-progress	50,000	60,000	65,000
Stock-in-trade	30,000	35,000	40,000
	<u>80,000</u>	<u>95,000</u>	<u>105,000</u>
<i>Total trading assets</i>	<u>80,000</u>	<u>95,000</u>	<u>105,000</u>
<i>Working capital</i>	<u>150,000</u>	<u>158,000</u>	<u>151,000</u>
<i>Liquid Ratio</i>			
Net liquid assets	0.47	0.40	0.30
Working capital			

Although the total working capital available has remained fairly constant over the period, trading assets have increased whereas liquid assets have decreased, thus accentuating the decline in the liquid ratio from 47 per cent to 30 per cent.

Full appreciation of the prospective margin of liquidity may be obtained by preparing a liquid margin budget (see Table 18, which relates to a company in course of erecting its own factory). Even when the liquid position is satisfactory, the need remains to exercise continual vigilance, for many executives take for granted the cash aspect of their transactions.

TABLE 18
LIQUID MARGIN BUDGET

	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
	£	£	£	£	£	£	£	£
<i>Trading Account</i>								
Material requirements	20,000	20,000	20,000	25,000	25,000	30,000	30,000	170,000
Less stock decrease			5,000	5,000	3,000	3,000		16,000
Cash required for material	20,000	20,000	15,000	20,000	22,000	27,000	30,000	154,000
Cash required for wages	5,000	5,000	5,000	6,000	7,000	8,000	8,000	44,000
Cash required for removal		2,000	3,000					5,000
Cash required for overhead expenses	8,000	8,000	8,000	10,000	12,000	12,000	12,000	70,000
Cash required	33,000	35,000	31,000	36,000	41,000	47,000	50,000	273,000
Cash from sales	40,000	45,000	45,000	45,000	45,000	50,000	60,000	330,000
<i>Liquid margin on revenue account.</i>	7,000	10,000	14,000	9,000	4,000	3,000	10,000	57,000
<i>Capital and Other Accounts</i>								
New buildings	6,000	7,000	14,000	2,000		5,000		34,000
New plant			5,000	15,000	6,000			26,000
Debenture interest	2,000			2,000			2,000	6,000
Income tax							17,000	17,000
Cash required on capital, etc., account	8,000	7,000	19,000	19,000	6,000	5,000	19,000	83,000
Cash from share issue					50,000			50,000
<i>Each Month</i>								
Liquid margin		3,000			48,000			24,000
Liquid shortage	1,000		5,000	10,000		2,000	9,000	
<i>Cumulative</i>								
Liquid margin				28,000	20,000	18,000	9,000	9,000
Bank overdraft £15,000 B.F.	16,000	13,000	18,000					

Net Worth

The amount of fixed and other assets plus the balance of working capital or minus the deficiency of working capital, as the case may be, represents the total capital employed and invested and reflects the tangible interest of investors in a company as disclosed by its balance sheet. If the total amount of capital employed is reduced by any sums appropriate to outside investors, *i.e.*, preference shareholders, debenture holders and mortgagees, the net worth is disclosed in terms of balance sheet values. This amount represents the interests of ordinary shareholders or the shareholders' equity. Ordinary shares are known as equity securities when they carry rights to residuary profits and net assets after the claims of all outside interests and the fixed income and capital rights of preferential shareholders have been satisfied. Net worth may be regarded as the balance sheet value of the net assets of a company, represented by the shareholders' equity as disclosed by the aggregate amount of ordinary shares, capital reserves, revenue reserves and retained profits relevant to ordinary shareholdings. The net worth of a company on a "going concern" basis is usually far more valuable than its net worth on a "break-up" basis calculated on the balance sheet values of working capital and net assets only. Goodwill, if of value, will be reflected in the "going-concern" value of the company. It is important to realize that the historical balance sheet makes no claim to describe current values.

The following figures exemplify the equivalence of net worth and shareholders' equity.

<i>Net Worth</i>					
					£
Working capital	.	.	.	.	170,000
Fixed assets	.	.	.	.	480,000
					<hr/>
Total capital employed	.	.	.	.	650,000
Less borrowed funds	.	.	.	.	200,000
					<hr/>
Net worth	.	.	.	.	450,000
					<hr/>

<i>Shareholders' Equity</i>					
					£
Ordinary shares	.	.	.	.	200,000
General reserves	.	.	.	.	200,000
Retained profits	.	.	.	.	50,000
					<hr/>
					450,000
					<hr/>

Plus, in each case, an unspecified amount representing goodwill.

If net earnings for the year are, say, £130,000, the return on total capital employed is 20 per cent. If outside interests require, say, £10,000 per annum for interest charges, the earnings on net worth are £120,000 per annum or 26 $\frac{2}{3}$ per cent. As the amount of net worth is represented by ordinary shares to the par value of £200,000 enhanced by retained profits and reserves, earnings on the ordinary share capital are 60 per cent or 12s. per £1 share. Apparently wide differences may exist according to whether earnings are expressed in relation to total capital employed, to net worth or to equity holdings. If earnings per

cent of total capital employed are low, but higher than outside requirements for borrowed money, the return to equity shareholders may be high, particularly when net worth is much greater than the amount of equity shareholdings.

As already mentioned, net worth consists on a "break-up" basis of fixed assets, investments and working capital and on a "going concern" basis of these assets together with an amount representing goodwill, which is dealt with below, and other so-called intangibles. In addition, other items such as loans to directors and development expenditure which will give rise to future income may be shown as assets, and regarded as a tangible part of net worth, provided, of course, the loans will be liquidated and the development expenditure will prove sound.

Assuming all assets to realize their book values and all liabilities to be correctly stated, the net worth as shown by the balance sheet at the date of liquidation is, subject to the payment of liquidation expenses, available for distribution among the ordinary shareholders, but when preference shares have participating rights to share in the equity, an allocation of reserves is required in order to determine the net worth appropriate to ordinary shareholders.

An amount set aside for payment of future income tax on profits earned to the date of the balance sheet and shown as a reserve for this purpose in the balance sheet is strictly a part of the shareholders' equity. In many cases, however, the amount so allocated is ignored in assessing the net worth and regarded as a deferred liability in the balance sheet. The problem of providing for future taxation is discussed in more detail later.

Goodwill only takes record when it is purchased, so that the goodwill value of most companies never enters into their accounts unless a change of ownership arises. In some cases, however, hidden goodwill may appear in a balance sheet, for example, as when fixed assets, such as buildings and plant, are acquired at apparently excessive prices which subsequently appear in the balance sheet. The correct practice in these circumstances is to revalue the assets on acquisition and show their proper market values in the balance sheet, whilst grouping the residue of their cost under the heading of goodwill until such time as the excess capital outlay can be amortized. In other cases, goodwill may be indirectly reflected in the balance sheet, as the following example shows, wherein the simplified balance sheet of an established company having ordinary shares of £1 each quoted on the Stock Exchange at 25s. each is assumed as follows :

Issued shares	.	.	£	800,000	Sundry assets.	.	.	£	1,000,000
Retained profits	.	.		100,000					
Creditors	.	.		100,000					
Total	.	.	.	<u>£1,000,000</u>					<u>£1,000,000</u>

As the net worth of each share is $\frac{9}{8}$ of 20s., or 22s. 6d. (i.e.,
 tangible assets — creditors
 issued shares), against a market value of 25s. each, the

balance of 2s. 6d. per share or £100,000 represents goodwill. If the capital of the company is increased by 200,000 ordinary shares of £1 each, issued at the market value of 25s. each relating to existing shares, the balance sheet then appears as follows:

Issued shares	.	.	£	1,000,000	Sundry assets.	.	.	£	1,000,000
Share premium	.	.		50,000	Cash	.	.		250,000
Retained profits	.	.		100,000					
Creditors	.	.		100,000					
				<hr/>					<hr/>
				£1,250,000					£1,250,000
				<hr/>					<hr/>

The original shareholders' equity of £900,000 is thus increased to £920,000 (*i.e.*, $\frac{\text{original issued capital}}{\text{present issued capital}} \times \text{net worth}$). The increased value of £20,000 represents the sale by original shareholders of one-fifth part of their goodwill asset ($\text{£20,000} = \frac{1}{5} \times 800,000$ at 2s. 6d.) to the new shareholders and is reflected in the figure representing share premiums matched by cash, so that the proceeds of the "sale" of goodwill are retained in the business. The new shareholders' equity is £230,000 (*i.e.*, one-fifth of £1,150,000), being £20,000 less than the amount contributed.

Goodwill acquired and paid for appears as an asset in the balance sheet, where it remains until amortized. As the value of goodwill fluctuates with the actual and prospective prosperity of a company, an anomalous position can arise. For when the value of goodwill decreases owing to reduced profitability, the need to depreciate its value in the balance sheet becomes more urgent and less practicable, whereas, in conditions of increasing prosperity, when additional profits arise which could be used to amortize its cost, the need to do so is hardly necessary as its value is obviously being maintained or increased. Under the circumstances, it is not surprising that no accepted rule exists for depreciating goodwill. There is no necessity, although it is permissible, to write down the value of goodwill so long as it remains unimpaired, but in all cases where its value is declining there arises a real need to amortize its cost. In general, the cost of goodwill should be amortized over a reasonable period. As to what constitutes a reasonable period depends on the circumstances; the period may be prolonged when goodwill is being maintained by, for example, consistent advertising or technical development work. As goodwill is not an asset of a tangible kind which depreciates through use in earning revenue, it is appropriate to amortize its cost by appropriations of profit. In some cases, however, goodwill is written off by regular charges against current income where the result does not seriously distort the trend of profit disclosed; but the procedure of writing off the value of goodwill against capital reserves enjoys only limited support, for although a payment for goodwill is of a capital nature, it is, in fact, a partial payment in advance of expected super-profits. If goodwill is amortized by appropriations of profit and thus eliminated from the balance sheet, the effect is that earnings per cent of capital employed tend to increase by reason of the

reduced asset values shown on the balance sheet, a tendency which requires recognition in making secular comparisons of percentage earnings.

Goodwill, although of uncertain permanent value, is a fixed asset and not a current asset, as it is acquired for its potential earning power. This, however, hardly provides a sound reason for financing the acquisition of goodwill by an issue of permanent capital in the form of ordinary shares. For to do so may lead to future difficulties if the value of goodwill is not maintained and, as there is no guarantee of this, an issue of short-dated redeemable preference shares may be more appropriate for the purpose. Although the idea of permitting the issue of shares having no-par value has not so far been adopted, there is some force in the suggestion that the acquisition of goodwill should be financed in this way, for shares of this kind would find their own value in the open market.

Financial Indices

The salient features of balance sheets and profit and loss accounts may be summarized in index form, thus providing a useful means of appreciating their significance and making secular comparisons of trend.

<i>Extracts from Final Accounts</i>		<i>Indices</i>	
<i>Profit and Loss Account</i>			
	£		
Actual sales . . .	1,000,000	Sales ratio =	$\frac{\text{Actual sales}}{\text{B.E. sales}} = 1.25$
Break-even sales . . .	800,000		
Profit for year . . .	100,000	Working capital r.p.a. =	$\frac{\text{Actual sales}}{\text{Working capital}} = 5.00$
<i>Balance Sheet</i>		Liquid assets ratio =	$\frac{\text{Liquid assets}}{\text{Working capital}} = 0.50$
Liquid assets . . .	100,000	Working capital ratio =	$\frac{\text{Fixed assets}}{\text{Working capital}} = 1.50$
Trading assets . . .	100,000		
Working capital . . .	200,000		
Fixed assets . . .	300,000		
Total capital employed	500,000	<i>Earnings per cent on</i>	
Less borrowed capital.	200,000	Total capital employed =	$\frac{\text{Profit} \times 100}{\text{Total capital employed}} = 20\%$
Net worth . . .	300,000		
	£	Net worth =	$\frac{\text{Profit} \times 100}{\text{Net worth}} = 33\frac{1}{3}\%$
Ordinary shares . . .	200,000	Ordinary shares =	$\frac{\text{Profit} \times 100}{\text{Ordinary shares}} = 50\%$
Reserves . . .	50,000		
Retained profits . . .	50,000		
Shareholders' equity	300,000		

The use of the working capital ratio is not recommended other than as a secular comparison of trend, because it is based on the assumption, not always true, that a business which is financially strong has a low ratio of fixed to working capital.

CHAPTER 14

PRINCIPLES OF INDUSTRIAL TAXATION

THE onerous burden placed on companies which, at the present time, takes away from their cash resources each year almost one-half at least of their assessable profits, in order to satisfy the demands of the National Exchequer for revenue from income tax, profits tax and surtax, requires that some consideration be given to this important subject in its incidence on industrial companies. Unfortunately, the complexities inherent in the law and practice of taxation make it impracticable to deal fully with the detailed working of this specialized and involved branch of industrial finance. Therefore, each of these forms of taxation will be treated in principle *seriatim* as affecting the industrial company, whilst further consideration will be given to their special incidence to groups of companies in a later chapter.

INCOME TAX

Income tax is an annual tax which, as its name implies, is levied on the statutory income of the fiscal year dating from the 6th April of one year to the 5th April of the next succeeding year. The law relating to income tax was consolidated in 1952 and has since been extended and amended by subsequent Finance Acts. The tax is renewed each year by the Finance Act of that year, which fixes the standard rate of income tax for the fiscal year and extends and modifies the law on the subject in accordance with the wishes of Parliament. Many decisions of the Courts are also on record, to which recourse is often necessary in order to determine the proper interpretation of the law in relation to particular points.

The taxing Acts deal with income derived by persons resident and non-resident from sources in the United Kingdom, as well as income derived by persons resident in this country from overseas. Whereas persons charged to income tax receive certain personal reliefs by reason of their income scale and domestic responsibilities, no such relief is afforded to industrial companies, which, being regarded in the eyes of the law as artificial persons, are charged to tax on their statutory income.

Classes of Income

As a matter of administrative convenience, incomes are classified for taxation purposes under five main headings, referred to as Schedules A, B, C, D and E, whilst income classified under Schedule D is also, in the interests of convenience, further classified within Cases I to VI, as follows:

Schedule

Classification

- A Income derived by owners of land and property situated within the United Kingdom, the resulting charge for income tax being generally referred to as property tax :

- B Income from the occupation of lands in the United Kingdom, which are not used for trading purposes unless as woodlands managed for profit :
- C Annuities, dividends and interest payable in the United Kingdom from public revenues at home or overseas :
- D *Case I.* Profits or gains arising from any trade carried on wholly or partly in the United Kingdom.
Case II. Income from professions or vocations in the United Kingdom.
Case III. Income from annuities, interest and other annual charges.
Case IV. Income from securities overseas and not included in Schedule C.
Case V. Income from trades and employments overseas.
Case VI. Income arising otherwise than under any other Schedule or Case and certain items specifically charged under this Schedule, such as excess rents.
- E Income which arises from offices, employments and pensions in the United Kingdom, excluding annuities charged under Schedule C.

Although the income of a company may be charged to tax under various schedules and cases, it is important to appreciate the principle that the statutory income arising from any source in any year is taxable once only and, as far as possible, at source. For example, where a company owns a factory on which it is charged to property tax under Schedule A on a notional basis which assumes a net annual value for the property, this value is allowed as a deduction from the earnings of the company in determining its statutory income or profits chargeable under Case I of Schedule D, as the source of each income is the net earnings of the company. Income tax is collected as far as practicable at the source of the income without regard to the circumstances of the ultimate beneficiary, but without prejudice to his right to claim repayment of tax in respect of any allowances or reliefs open to him. The revenue benefits from this procedure by the automatic elimination of tax evasion and by cost saving in the machinery of collection, although expense is incurred in dealing with repayment claims where the recipient of the income is not subject to taxation at the standard rate of tax in the pound.

Taxation at Source of Income

Special arrangements apply in respect of taxation by deduction at the source of income and relate to all payments of yearly interest, annuities and other annual amounts paid under a binding legal obligation, as well as to payments made for the user of a patent and payments of copyright royalties, mining royalties, mineral rents (with some exceptions), rents paid under long leases (*i.e.*, leases exceeding fifty years, although, in practice, a period of sixty is often taken) and other annual charges on land and property. Indeed, an agreement is void which provides for the payment of annual interest or other annual amount without deduction of tax. The rules are applicable to debenture interest and mortgage interest payments as these are in the nature of yearly interest on loans or investments which have some degree of permanence, but bank interest and trade interest is usually paid gross and allowed as an expense in determining assessable income. An

exception is also made in respect of building society interest, in respect of which special arrangements have been made.

Thus, when a company makes annual payments of the nature mentioned out of taxable income for the year in which the payment is due to be made, it is entitled to deduct tax at the standard rate for the year in which the amount payable is due and to retain the amount so deducted, because the company itself will in due course be charged to tax on the original source of income, viz. on its profits. The recipient of the income is obliged to permit the deduction and he cannot be assessed on the annual amount if the company fails to deduct the tax. As the company retains the amount of any tax deducted in this way, it is only right that the amount of the annual payment should not be allowed as a trading expense in ascertaining its profits for taxation purposes.

In regard to the taxation by deduction at source of dividends and interest, every company is under a legal obligation, whenever it issues a dividend warrant or cheque or other order in payment of any dividend or interest, to show not only the net amount paid but also the corresponding gross amount, together with the amount and rate of income tax appropriate to the gross amount of the dividend. The rule applies even if the dividend is paid "without deduction of tax", or "free of tax". The requirement of deduction of tax at source does not, of course, relate to dividends from capital profits. When a company has received double-taxation relief, details of the "net United Kingdom rate" have to be shown on the dividend warrant, and any repayment of tax to the shareholder is on the basis of the "net rate" payable by the company after crediting the double-taxation relief granted to the company.

When any interest or annual payment is not made wholly or partly from taxable profits of the company of the year in which the payment is due to be made, the principle applied is that the company must nevertheless deduct tax at the standard rate in force at the date of payment and pay over the amount so deducted to the revenue. Hence, when a company pays debenture interest during a year of assessment in which it is trading at a loss or has an assessable profit of less than the amount of the payment, the company will have deducted more tax from the payment than it has itself paid. Accordingly, the application of the principle takes the excess from the company by a separate assessment under Case III of Schedule D when the annual payments exceed the total taxed income of the company, whether taxed directly or at source. Even though the company's profits for the fiscal year are nil, any annual payment made by the company in that year is not regarded as being from taxable profits, notwithstanding that accumulated profits which have been taxed in previous years are available for making the payment. However, for the purpose of obtaining future relief in respect of the additional assessment, the amount on which tax has been deducted may be regarded under certain conditions as though it were a loss sustained in the trade.

The pay-as-you-earn system of collecting tax due from employees chargeable to tax under Schedule E is a particular instance of tax

deduction at source, for the employer is required by law to calculate and deduct tax when making payments of salaries, wages and other emoluments to employees. The inspector of taxes notifies the employer of the tax code appropriate to each employee, which enables the employer by reference to tax tables supplied by the inspector to ascertain the necessary deductions to be made. Emergency tables are provided to cover employees for whom no code has been determined, but deductions are not usually required where the remuneration concerned is not more than £3 5s. per week or £13 10s. per month. On the other hand, amounts paid as expenses or benefits in kind by a company to a director or to an employee in receipt of total emoluments at the rate of £2,000 per annum or more are subject to tax under this scheme, unless the person concerned has sustained a claim for his expenses or benefits as allowable deductions from emoluments charged to tax. The employer must remit to the collector of taxes within fourteen days after the end of each income tax month the sums which he was liable to deduct from earnings of his employees during that month.

Clearly, the amount of income tax payable by an industrial company depends upon the standard rate of tax in force and the amount of its statutory income from all sources for the year of assessment. Consequently, consideration will now be given to the meaning of the term "statutory income".

"Property" Tax

The statutory income from property for the purpose of income tax is notionally based on valuations which, under normal conditions, are made quinquennially. The basic valuation known as the gross annual value is the rental value which the property would command by the year in the open market if the tenant undertook to pay all the usual tenant's burdens, such as local rates and water rates, and the landlord undertook to bear the cost of repairs, insurances and other expenses necessary to maintain the property in a state fit to continue to command the rent. A gross annual value once fixed cannot be varied until the next valuation, unless new facts are discovered or structural alterations, additions, or improvements are made, as in these cases the property may be expected to command a different rent.

Income tax is charged at the standard rate in force on the net annual value of the property, which is derived from the gross annual value by deducting a statutory allowance for repairs which, in respect of lands, is one-eighth of the gross annual value and in respect of buildings is as follows:

Gross annual value not exceeding £40	One-fourth.
Gross annual value exceeding £40, but not exceeding £50	£10.
Gross annual value exceeding £50, but not exceeding £100	One-fifth.
Gross annual value more than £100.	£20 plus one-sixth of the excess over £100.

Deductions from the gross annual value are also allowed for land tax, drainage rates and five-sixths of any tithe redemption annuity.

Property tax is charged on the occupier of the property, as providing the source of income from which the tax is paid, unless the immediate landlord elects to have the charge made on him. In any event, the landlord is assessable upon property which is let for a period of less than a year, as in such cases the tax is more likely to be assured to the revenue. The tenant-occupier who pays property tax is entitled to reimburse himself by deducting the amount on payment of rent, but, of course, if the rent exceeds the net annual value, tax is deductible only from the amount of the net annual value, as this provides the notional basis of statutory income. Conversely, if the net annual value exceeds the rent, tax is deductible only on the amount of the rent, in which event the tenant bears the balance of tax, as he is the beneficiary of the difference between the statutory income and the actual income. Just as the tenant-occupier is entitled to deduct tax from any payments which he makes, so is the property owner entitled to deduct tax in respect of any ground rents, rents or annual charges on the property, for the beneficiary of that part of the statutory income is the person who receives the benefit of these outgoings. As the property does not provide a source of income when it is empty, void relief is given when premises are unoccupied for the year or any part of the year, upon proof being given. It has been held, moreover, that the occasional use of plant merely to avoid its rusting in an otherwise empty factory does not justify withdrawal of relief. However, the relief is restricted if the rent is still due under a short lease, that is, one which does not exceed fifty years, because in this case the statutory income is still regarded as arising, but, of course, the rent-payer still enjoys the same right of deducting tax at the effective rate in force during the rental period as he would have as the tenant-occupier.

Property tax is payable in one sum on or before the 1st January in the year of assessment, except where a house is occupied rent free as part of the emoluments of office or employment, and regarded as earned income, in which event it is payable in two instalments or collected under the system of pay-as-you-earn. If the amount of tax exceeds the first quarter's rent, the tax payable on the 1st January may be restricted to an amount which equals the next quarter's rent and the balance paid not later than 1st April following.

Maintenance Claims

Although the statutory deduction made for repairs in determining the net annual value is constant whatever may be the actual expenditure, relief is available if the statutory income has, in effect, been reduced by the extra cost of repairs over the amount visualized. Relief may be obtained by making a maintenance claim on the Inland Revenue if the average expenditure in the five preceding years exceeds the statutory allowance. The claim includes any expenses such as repairs, maintenance, insurance and management of the property, but not capital outgoings in the nature, for example, of alterations and improvements. No expenditure is allowed in the claim which has already been allowed as a deduction in computing income for taxation purposes, as where expenditure on property repairs has been included in the

expenses of a company in ascertaining its profits of trade under Case I of Schedule D. As property tax is usually paid only on the net annual value of the property, the amount normally recoverable under a maintenance claim is limited accordingly. Naturally the measure of relief is greater where an additional assessment to tax has arisen in respect of excess rents derived from the property, as mentioned below. Maintenance relief is usually given by way of repayment of any tax refund due ; but may be obtained before payment of the tax charged on the property if action is taken in time.

Excess Rents Assessment

As already indicated, an additional assessment may fall on the owner of property assessable to tax under Schedule A when his real income from the property is in excess of the notional amount regarded as the statutory income. Rents from overseas properties are, of course, covered by assessments under Case V of Schedule D, whilst excess rents assessments are dealt with in Case VI of the same schedule and made in accordance with the rent received in the year of assessment. Different provisions apply, however, to the case of a long lease and to the immediate lessor of a short lease or to other lessors of a short lease.

In the case of long leases, the lessee is entitled to deduct tax at the standard rate in force upon payment of rent. As the rent-payer is assessed under Case VI of Schedule D, he is entitled to recoup himself by deducting tax at the standard rate at the date of payment. Accordingly he cannot show the rent paid under a long lease as a deduction from trading profits in determining his statutory income for taxation purposes.

Where a short lease applies, the immediate lessor of a single unit of assessment to whom the rent is paid suffers the additional tax for excess rent by means of a separate assessment under Case VI of Schedule D. A net annual value is notionally ascertained for each year on the basis of the annual rents and the normal rules of Schedule A. The measure of the assessment is the excess of the notional net annual value over the greater of either the actual net annual value or the rent paid by the lessor for that unit of assessment under any short lease. The assessment is different in the case of lessors under short leases who are not immediate lessors and in other conditions where the short lease relates to premises not wholly contained in a single unit of assessment, such as blocks of rented offices, flats and shops let at an inclusive rent. In such cases, the excess rents assessment is based on the excess of the rents received over (1) the amount of the net annual value or rent payable by the immediate lessor, whichever may be the greater ; (2) the rates payable by the lessor for that year ; (3) outgoings such as land tax, drainage rates and tithe annuity ; and (4) services rendered or goods supplied under the lease, and maintenance claim expenditure on a five-year average basis not otherwise given for taxation purposes. It has been held that where the rent receivable by an immediate lessor is less than that payable, relief in respect of the deficiency may be claimed against income chargeable under the excess rents provisions or against other income chargeable under Case VI of Schedule D.

Tax on Trading Profits

The usual procedure for computing the assessment of the trading profits of industrial companies is for the company secretary, or other officer, to send to the inspector of taxes copies of the relative balance sheet and profit and loss account, supported by statements showing how the amount which the company proposes to return for assessment has been derived. Correspondence and interviews follow until the amount to be assessed has been agreed, whereupon the secretary, or other officer, makes a formal return of income on the relative statutory form, which is regarded by the inspector as the formal act of responsibility of the company in determining the statutory income of the company for taxation.

Basis of Assessment.—Although, in theory, the actual net income or profits of a company for the actual year of assessment would seem to give the most equitable basis of assessment to tax for that year, certain practical considerations militate against this arrangement. Companies do not usually find it convenient to make up their annual accounts for the period of the fiscal year, which is so awkwardly dated from the 6th April in any calendar year to the 5th April in the next succeeding calendar year. It is more usual for them to take the actual calendar year ending 31st December, or a date ending on each anniversary of the business, or a period ending at some other more convenient date. From the fiscal point of view, also, undue delays would arise in collecting tax if the results of the year of assessment had to be determined before the work of assessment could begin. Moreover, the trading profit shown by a company's profit and loss account may differ significantly from what would be shown as trading profit by a similar company operating under the same condition, so that a uniform basis of deciding the profits or statutory income of a company for taxation is a necessity. For example, in assessing profits for taxation purposes, companies are required in valuing their stocks-in-trade to adopt the basis of cost or market price, whichever is the lower, although in their commercial trading accounts the method of stock valuation adopted may be more conservatively based.

In view of these practical considerations, the artificial basis is adopted of making the assessment on the profits of the company's financial year ending within the preceding fiscal year. This, of course, causes complications in assessing the statutory income in the opening years of a company's business, because no preceding year basis will exist in respect of the company's first year of trading and only part of a year may be available as the preceding year basis in respect of the company's second year of trading. Accordingly, special rules apply in making the assessment for the opening and closing year of a company's trading.

Briefly, the basis for the year of assessment in which trading commences is taken as the actual profit of that year. In the next year of assessment, the profits of one year from the date of commencement of business are taxed, whilst in the third year of assessment the normal preceding year basis is applicable. Thus, the profits of the first year's trading may enter into the tax computation of the first three years. However, the company may elect to have the assessments of the second

and third years reduced to the actual profits of those years ; but a claim cannot be accepted for one year only. The latitude of choice is such that a claim made within two years after the second year of assessment can be revoked within twelve months after the end of the third year of assessment, with a reversion to the normal basis applicable to new businesses for each year. Incidentally, where a holding company takes over the business of a subsidiary, it is not allowed the benefit of the preceding year basis of the business acquired, but the event does not imply that the business acquired is henceforth to be treated as a separate business.

In the event of cessation of trading by a company, the assessment for the year in which the business is permanently discontinued is adjusted to the actual profit from 6th April to the date of cessation. If the actual profits of the tax year preceding that in which discontinuance occurs exceed those already taxed in that year of assessment, an additional assessment will be raised on the excess, unless the business is discontinued as the result of nationalization.

In order to avoid hardship when a substantial loss arises in the final trading year of a business which is permanently discontinued, relief from the terminal loss may be claimed as a deduction or set-off against chargeable income under Schedule D from the same business for the three years of assessment immediately preceding the year of discontinuance, provided relief in respect of the same loss is not obtained under other provisions of the Income Tax Acts.

The profits of the preceding years of assessment against which the terminal loss may be offset must be treated as reduced by any payments made thereout after deduction of tax which was not accounted for because the payment was made from profits charged to tax and by any dividend payments, because in respect of such payments it was the recipient of the income who suffered tax and not the payer.

It is the terminal loss of the trading year that has not attracted relief otherwise which qualifies for relief, together with the relative capital allowances. No difficulty arises if the trading year and fiscal year are co-terminous ; but, in other cases, the amount available as terminal loss may be restricted because the final trading year will necessarily spread into two fiscal years covering, respectively, that part of the trading year ending on the 5th April and that part commencing on the 6th April, and if the amount of profit in the penultimate fiscal year increased the charge to tax under the discontinuance provisions because it was higher than that of the trading year ending within the antepenultimate fiscal year, then to the extent that the financial results for the period up to 5th April in the final year of trading have been taken into account in the assessment, the amount concerned will be excluded in calculating the terminal loss.

Ascertainment of Taxable Profits.—It has already been emphasized that the commercial profits as shown by the company's accounts are adjusted in order to determine the statutory income of the company for taxation purposes. As the actual trading accounts of a company are usually more conservatively based than those adopted for taxation purposes, it is not unusual for the tax charge to be assessed on a greater

amount than is disclosed as being the net profit of the company. As income tax is chargeable once only on the income of the year and, wherever possible, at source, any income taxed under other schedules or cases and any income from which tax has been deducted at source must be excluded. As income tax is merely a tax on income, anything in the nature of capital receipts must be excluded from the accounts. Although capital profits and receipts are not taxable, it is the nature of the transaction which governs exemption. For example, the profits derived by a property-dealing company from the sale of properties are normal trading receipts and subject to tax. Conversely, amounts realized by liquidators from current or fixed assets in a winding up, as distinct from trading, are regarded as capital profits not assessable to tax.

Expenses disallowed in computing profits for taxation purposes comprise amounts from which tax has already been deducted at source at the time of payment, expenses of a capital nature and amounts which have not been wholly and exclusively laid out or expended for the purposes of the trade, *i.e.*, for the purpose of earning the profits. Distributions of profits are obviously disallowable. The present test of capital expenditure which is not deductible from income as a trading expense requires that, although the amount has been wholly and exclusively incurred for the purposes of the trade, it has been made with a view to creating an asset or an advantage with a benefit to the trade which endures like a fixed asset. It is important to remember that the taxpayer's description of the expenditure is by no means conclusive, as the inspector of taxes will require to be satisfied by suitable analyses of expenditure that nothing is included in the nature of capital expenditure.

In addition to the allowance as deductions for taxation purposes of amounts laid out or expended wholly and exclusively for the purpose of the trade, there is the net annual value of property owned and occupied for the purpose of the business and upon which Schedule A tax has been paid. This arrangement avoids paying tax on a purely notional income which has been assumed for the purpose of ensuring payment of tax by deduction at source. Deduction may be made also in certain cases of a special mills and factories allowance ; but this arises only if the allowance applied prior to 1945-46 and the taxpayer has not elected otherwise. In any event these allowances do not extend beyond 1955-56.

In compiling company accounts, different companies adopt various methods for depreciating the cost of buildings, plant, machinery and other assets in consideration of their wear and tear and diminishing value through weathering and gradual obsolescence with time. Hence, it would be inequitable if the profits shown in each particular case were adopted for taxation purposes. Moreover, it would be simple to avoid tax payments by merely adopting the expedient of making excessive provisions for the depreciation of assets and so reducing disclosed profits. Accordingly, the statutory income of a company for taxation purposes is determined without regard to any allowances for depreciation ; but the amount assessed is, however, reduced on a uniform basis by way of

an allowance permitted for the use of assets owned by the company in its business. The principles of this statutory system of capital allowances are explained below. There is, however, need to refer to the fact that an exception is permissible in this respect, for a deduction may be made against trading income for the obsolescence of plant purchased before 6th April, 1946, and replaced subsequently within the year of account, provided the taxpayer so elects in writing. This is advantageous if the plant was purchased partly from public grant or subsidy, as the obsolescence allowance is calculated on total cost, whereas the alternative of a capital allowance is assessed merely on the actual cost of the asset to the company.

The normal adjustments required to ascertain the statutory income of a company for taxation purposes by reference to the trading results shown by its profit and loss account may be conveniently summarized as follows:

ADJUSTMENTS OF TRADING PROFITS FOR TAXATION PURPOSES UNDER
CASE I OF SCHEDULE D

<i>Profits per annual accounts</i>	£	£	<i>Examples</i>
<i>Add</i>		xxxxx	
(a) Expenses of a capital nature	xxx		Capital invested in business. Expenditure on improving assets. Provisions for depreciation.
(b) Distributions of profit	xxx		Taxation payments, transfer to reserves, dividends paid.
(c) Payments not made wholly and exclusively for the purpose of earning the profits.	xxx		Charitable donations without benefit to employees. Costs of fines and costs in respect of breaches of the law.
(d) Expenditure on which tax has been deducted and retained on payment.	xxx	xxxx	Annuities, patent royalties, interest, ground rent and dividends taxed at source.
<i>Deduct</i>			
(a) Capital profits	xxx		Profits on sale of assets no longer required.
(b) Capital receipts	xxx		Sale of scrap plant.
(c) Income already taxed at source.	xxx		Dividends—received net.
(d) Income already taxed under other Schedules.	xxx		Interest received under Schedule C.
(e) Income taxable under other cases of Schedule D.	xxx		Interest from overseas under Case IV. Dividends from abroad under Case V. Excess rents under Case VI.
(f) Net annual value of premises.	xxx	xxxxx	Particular example of (d).
Statutory income chargeable		<u>xxxxx</u>	

If the company's accounts show a loss instead of a profit, the amounts added in the above table must be deducted and *vice versa*.

<i>Assessment</i>	£
Tax at the standard rate on the statutory income of £xxxxx	= xxxxx
Less tax at the standard rate on capital allowance	xxxx = xxxxx
Actual charge for taxation	= <u>xxxxx</u>

Investment Allowances and Capital Allowances

Although the provision made for the depreciation of assets in the profit and loss account of the company cannot be taken as a deduction from income in determining the statutory income chargeable to tax,

the statutory system of capital allowances and charges which has been adopted as a general measure ensures that in determining assessable profits a full allowance is made for the whole cost of assets employed over their useful working life. The system is such that the company neither makes a profit nor incurs a loss through the application of this method. Accordingly, whether an asset is retained until scrapped or sold before its useful life is ended, either a balancing allowance or a balancing charge is made to the company according to whether the net capital cost of the asset to the company, less any revenue from disposal, is, respectively, greater than or less than the aggregate amount of capital allowances received by the time the plant ceases to be used in the business. Such allowances and charges are no longer precluded where assets are bought and sold in the same accounting period. When costs are incurred in demolishing assets, any excess of the cost of the demolition over receipts from the remains of the property is taken into account in making balancing allowances and balancing charges.

This system of capital allowances originally incorporated an initial allowance as well as annual allowances and balancing adjustments, in respect of industrial buildings, plant and machinery generally and mining works. Annual allowances also applied in respect of capital expenditure on patents and in connection with scientific research. Initial allowances were, however, almost entirely discontinued for a period, but a year after their general re-introduction the Finance Act, 1954 introduced a system of investment allowances in respect of capital expenditure on new assets, with the object of increasing production capacity in British industry.

Generally the field of application of investment allowances coincides with that of initial allowances with, however, certain extensions and limitations. The extensions bring in agricultural buildings and plant and machinery used for the purposes of research ; but the limitations exclude second-hand plant and machinery and passenger road vehicles which are not used as part of the ordinary stock-in-trade of a car-hire, taxi or similar concern. However, the system of initial allowances continues to apply to second-hand plant and machinery and also to motor vehicles which do not attract the investment allowance. In general, where the Finance Act, 1954 provides that an investment allowance shall be made instead of an initial allowance in respect of capital expenditure on new assets, no initial allowance will be made notwithstanding that an investment allowance is for any reason not made, except where the person entitled has and exercises a statutory option in favour of an initial allowance (as in the case of shipbuilding and the construction of works for mines and oil wells), or where an initial allowance is permitted when an investment allowance is withheld or withdrawn for certain statutory reasons as mentioned below.

The initial allowance really constitutes a tax-free loan from the National Exchequer because it merely anticipates the residue of expenditure which ranks for depreciation in the form of annual allowances, thus giving maximum relief of 100 per cent altogether on the original cost of the asset. On the other hand, the investment allowance,

although related to the original cost of the asset, is given over and above this amount and is not taken into account in calculating the residue of expenditure on which annual allowances are made for depreciation or for the purpose of calculating balancing allowances and balancing charges. For example, with an initial allowance or an investment allowance of 20 per cent and subsequent annual allowances of 10 per cent in each case, a total allowance of 30 per cent would apply for the first year in either case leaving the percentage of the original cost available for future allowances as 70 per cent (*i.e.*, 100–20 I.A.–10 A.A.) with the initial allowance system and 90 per cent (*i.e.*, 120–20 I.A.–10 A.A.) with the investment allowance system. Thus both arrangements give the same tax relief in the first year, but whereas the initial allowance does so by reducing the amount available for annual allowances in subsequent years, the investment allowance permits annual allowances to be given over the life of the asset to cover the whole of its original cost. In no case is the amount of the investment allowance to be deducted in determining the residue of expenditure or taken into account for the purpose of ascertaining the maximum amount on which a balancing charge may be made.

Investment allowances like initial allowances apply to profits tax as well as income tax. Allowances are given under these arrangements in respect of the fiscal year by reference to a basis year, which, in the case of trading profits under Case I of Schedule D, is the period on the profits of which the assessment for the year is based ; *e.g.*, for accounts compiled to 31st December, the basis period for year 1954–55 is the year to 31st December, 1953. If two basis periods happen to overlap, the common period is deemed to fall within the first basis period only. Expenditure incurred attracts the capital allowance on the date when the amount becomes payable, so that if plant is acquired on hire-purchase terms, capital is regarded as being expended as and when each instalment falls due for payment.

Investment Allowances.—The expenditure considered for relief through investment allowances is related to a basis period for a year of assessment and those provisions of the Income Tax Acts are excluded which have the effect of post-dating expenditure so that it is deemed to have been incurred on a date later than the actual date. When a claim is made for an investment allowance, a certificate of claim must be annexed which is deemed to form part of the claim, signed by the claimant, stating that the expenditure was incurred on new assets and giving such particulars of the purposes for which they are to be used as to justify the application for allowance.

A qualifying period of three years in some cases and five years in others applies to the system of investment allowances. The allowance will be withheld or withdrawn, as already indicated, if any of certain events occur within the relevant period. However, any initial allowance hitherto applicable is to be made if an investment allowance is withheld or withdrawn if any of these events occur otherwise than by reason of a sale or transfer. These events comprise acts, which as to the first five may be done by the person incurring the expenditure or an associate of his, as follows :

- (a) a sale of the relevant property to a non-resident buyer not acquiring the property for a chargeable purpose or for scrap.
- (b) a change of residence, whereby the relevant property ceases to be appropriated to a chargeable purpose. It is, of course, unlawful for a company to move its residence out of the United Kingdom without Treasury consent.
- (c) an appropriation of the relevant property to a non-qualifying purpose.
- (d) any sale or transfer of the relevant property for a non-qualifying purpose where it appears to the Commissioners of Inland Revenue that the expenditure was incurred in contemplation of the transaction.
- (e) Any sale, transfer or other dealing with the property (such as its destruction which gives rise to a balancing allowance) where it appears either that :
 - (i) the expenditure was incurred in contemplation of the property being so dealt with : or
 - (ii) the sole or main benefit from the whole transaction was or derived from the relative investment and other allowances, unless it is shown either that the purpose of obtaining tax allowances was a secondary consideration or the whole transaction was *bona fide* and not designed in order to obtain tax allowances. Thus genuine transactions are protected.
- (f) Any sale or transfer of a passenger road vehicle not made to a person acquiring it for a qualifying purpose (*i.e.*, used wholly or mainly for hire to or the carriage of members of the public) or as scrap and any appropriation of it for a non-qualifying purpose.

The relevant period in relation to any of these events is three years, except in respect of a sale or transfer under paragraph (d), or a sale, transfer or other dealing within paragraph (e), where the relevant period in each case is five years.

An act for these purposes is deemed to be done by an associate of the person incurring the expenditure if the act is done by :

- (i) A body of persons which is at the time of the act under the control of the person incurring the expenditure : or
- (ii) a person, who either at the time of the act or the expenditure, controls the body of persons which incurs the expenditure : or
- (iii) a body of persons which either is at the time of the act or was at the time of the expenditure, under the same control as the body which incurred the expenditure : or
- (iv) a person to whom the property was transferred by the person incurring the expenditure or an associate of his and apparently the transfer made was in anticipation of the act.

Certain duties are laid upon a person who has incurred expenditure in respect of which an investment allowance has been given and has not been withdrawn. He is obliged to notify the Surveyor of Taxes if to his knowledge any of the following events occur before the expiration of the statutory period of three years :

- (a) sale of the relevant property by him or by an associate of his to a non-resident, or if the property is situated overseas, to any person : or
- (b) appropriation of the relevant property by him or by an associate of his to a non-qualifying purpose :
- (c) any sale, transfer, or appropriation of a road vehicle which falls under (f) above.

The name and address of the buyer or transferee must be disclosed in the notice of sale or transfer. Moreover, the Surveyor of Taxes must be given all the information he may require and which the person or the transferee can reasonably obtain about the sale or transfer or about any other dealing with the property.

Buildings.—A company which incurs capital expenditure on the construction of an industrial building or structure to be occupied for the purposes of a trade is entitled to an investment allowance equal to one-tenth of this expenditure. Generally, the investment allowance of 10 per cent is applicable if the initial allowance would have been obtained on a similar industrial building or structure in 1953-4 ; including buildings used for the welfare of employees. Buildings or structures wholly or partly used as dwelling houses, retail shops, show-rooms, hotels or offices or for any such ancillary purpose are excluded, apart from such parts of industrial buildings which represent not more than 10 per cent of the total cost of construction. It has been held that drawing offices come within the definition of an industrial building. Investment allowances are also applicable in respect of expenditure incurred on cutting, tunnelling and generally preparing land for industrial structures ; *e.g.*, in the construction of dry-docks, railway tunnels and water-works. These activities never attracted initial allowances and still do not attract annual allowances. The investment allowance, unlike the initial allowance, is also available in cases of new capital expenditure on buildings in respect of which the mills and factories allowance may still be claimed.

The investment allowance is granted, with one exception mentioned below, to a person, including a company, who incurs expenditure on the construction of an industrial building either on his own land or on land which he occupies as a lessee, whether or not he occupies the building himself, or lets or sub-lets it, but the building must be for occupation in his own trade or for the trade of his tenant or sub-tenant. The allowance is normally made for the year of assessment, in the basis period for which the expenditure was incurred ; but if the building is let to a tenant who has the first use of it, the year of assessment for which the allowance is made is the year in which the tenancy commenced, being the first year in which it was put to industrial use. The exception mentioned above arises if the building is sold before use, in which event the purchaser is deemed to have incurred the cost of construction or the net price paid by him, whichever is the less, on the day when the purchase price became payable ; if the building is sold more than once, the sale price is considered only in relation to the last sale. However, if a builder constructs and sells the building before its use, the actual price paid is regarded as the expenditure incurred if

only one sale occurs, otherwise the expenditure incurred is regarded as the price paid to the builder by the first purchaser, or the net price paid by the final purchaser before the building is used, whichever is the less.

The investment allowance for capital expenditure on buildings does not in comparison with the initial allowance benefit the taxpayer until forty-five years after he has incurred the expenditure on the new buildings and even then is spread over a period of five years. This arises because the annual allowance of 2 per cent in respect of industrial buildings is given on a straight line basis so that the normal capital allowances now are 10 per cent by way of investment allowance plus 2 per cent for fifty years, whereas before the introduction of investment allowances, the initial allowance of 10 per cent of the capital expenditure was deducted to assess the amount appropriate to annual allowances, which thus continued for forty-five years at the annual rate of 2 per cent.

The annual allowance made is equal to 2 per cent of the expenditure incurred by a company which at the end of the basis period of the year of assessment is entitled to what is termed the relevant interest so long as the building continues in industrial use. Generally, the residue of expenditure comprises the cost or purchase price, as the case may be, less allowances, exclusive of any investment allowance, granted for taxation purposes, including any mills and factories allowance, and any exceptional depreciation allowances. An allowance is not granted in any year of assessment in excess of the amount still unallowed. The annual allowance of 2 per cent also applies to the original cost of expenditure on an industrial building erected less than fifty years before 6th April, 1946, which has not been sold after that date. In this case, the annual allowances are limited, in the aggregate, to the residue of that expenditure after taking into account amounts written-off before 1946-47, so that annual allowances are not granted for longer than the number of years of assessment occurring after 5th April, 1946, in a period of fifty years subsequent to that in which the building was first used.

When an industrial building is sold or destroyed or falls into disuse before the fiftieth year of life, a balancing allowance or balancing charge is made dependent upon whether the proceeds fall short of or exceed the residue of unallowed expenditure. The balancing charge is proportionately reduced in respect of each year of assessment for which neither an annual allowance nor a scientific research allowance was made and is subject to an over-riding limit equal to all the various allowances granted to the company, excluding investment allowances. These allowances comprise the initial, annual, scientific research and mills and factories allowances together with any exceptional depreciation allowance, but exclude any notional allowances written off to determine the residue of expenditure. When a balancing charge is made upon a sale, the amount of the residue of expenditure is regarded as being augmented by the amount on which the balancing charge was made to give the residue of expenditure to the purchaser of the property. When a balancing allowance is made because of a sale, the residue of expenditure is reduced to the net sale price.

Plant and Machinery.—Allowances are also granted in respect of capital expenditure on plant and machinery at the close of the basis period for that year. The investment allowances applicable to new (*i.e.*, unused and not second-hand) machinery or plant is 20 per cent of the expenditure, being the same rate as the initial allowance. The investment allowance does not, however, apply in respect of private road vehicles unless used, for example, by a car-hire business or a bus company. Where an investment allowance is made or falls to be made in respect of machinery or plant which is sold by the person incurring the expenditure or an associate of his, the buyer cannot obtain an initial allowance unless the investment allowance is withheld or withdrawn as mentioned on page 268 if he is an associate of the person incurring the expenditure, or if the expenditure was apparently incurred in contemplation of the sale, or if the sole or main benefit which might apparently have been expected to accrue to any of the parties would, but for these provisions, have been or have derived from the investment allowances or initial allowances in respect of the machinery or plant sold or any replacement machinery or plant.

When initial allowances were temporarily suspended in 1951 it was recognised that shipbuilding is a long-term process which involves the making of progress payments as the work proceeds. Accordingly, a limited exception was made in respect of expenditure contracted for on the provision of a new ship (or its engines) not later than 10th April, 1951 which was actually under construction for the persons who were carrying on the trade on that day or were then about to do so. Persons thus committed to such capital expenditure before the initial allowance of 40 per cent on ships was suspended were permitted to continue to claim the allowance as and when expenditure was incurred. Under the circumstances, such owners may opt to take either the 40 per cent initial allowance or the 20 per cent investment allowance, because the investment allowance, unlike the initial allowance, is not taken into account in determining the written down value.

An annual allowance is also granted, in the absence of a renewals claim, to cover the physical deterioration of plant and machinery used for the purpose of trade. It may be claimed by the company which owns and uses the plant in its business or by the company which accepts the full burden of wear and tear either as hirer or lessor of the plant. In the last-named case, the allowance is made in discharge or repayment of tax, primarily against the income from hire. Annual allowances are granted as five-fourths of a percentage determined by the Commissioners of Inland Revenue, either on a constant or a reducing-balance basis, in accordance with basic rates of wear and tear which have been agreed with representatives of industry for most classes of plant. The reducing balance method, which takes into account all allowances previously made in relation to the capital expenditure on each particular class of plant, is applied unless election is made for the fixed allowance method, which is available only when adequate records are kept for each item of plant and the relative allowances. If this election is made after the normal method has been in use, future allowances are assessed by the revenue authorities as a percentage

of the expenditure unallowed. In the event of the profits chargeable to tax in any year being inadequate to give full effect to the annual allowances due for that year, together with any allowances brought forward from previous years, the excess of allowances may be carried forward for set-off against future assessments.

In order to ensure that neither profit nor loss arises to the tax payer from what is in effect the provisional operation of the system of capital allowances, a balancing allowance or balancing charge may be made when machinery or plant included within the scheme ceases to belong to the company, or to be used for the purpose of its trade before cessation of business, or is retained by the company beyond the date its trade is permanently discontinued. It is, therefore, immaterial whether the asset is sold, destroyed or put out of use before or after the closing of the business. A balancing allowance is given for the amount by which the cost, less the proceeds of sale, exceeds the total allowances, excluding any investment allowances, already received ; but if these allowances exceed the cost less proceeds, a balancing charge is made on the excess or on the sum of allowances received, whichever is the less. However, if the asset is destroyed, the company may claim to have the amount of the balancing charge deducted from the new capital expenditure for capital allowance purposes so that immediate payment of tax to clear the charge may be obviated. In this event, the balancing charge is omitted in fixing capital allowances for the new plant ; but regarded as an addition to an initial allowance in the event of a balancing allowance or charge being made on the new plant. If plant replaced is sold in such circumstances that a balancing charge is incurred which exceeds the cost of the new plant, the company may elect in writing for the charge to be made only on the difference, so that no capital allowance will be made for the new plant and in fixing any balancing charge on the new plant its entire cost will be regarded as having been absorbed. Special rules apply where the event giving rise to a balancing allowance or charge is not made at arm's length, or the event is that the asset is no longer used for the purpose of the trade ; for example, the open-market price may be adopted in respect of plant given away or sold at less than its market value. It is not possible to claim an obsolescence allowance on plant purchased since 6th April, 1946, but a company may elect in writing to have such an allowance instead of a balancing allowance in respect of plant purchased before that date. In such an event, the cost of demolishing the plant is to be treated both as an amount expended in replacing the machinery or plant and as part of the machinery or plant replaced.

Mines, Oil Wells and Mineral Resources.—The system of capital allowances is also applied to expenditure incurred on construction or development work in connection with mines, oil wells, quarries and other mineral deposits of a wasting nature, on searching for, discovering and testing deposits or winning access to deposits or on the construction of works likely to be of little or no value when the source ceases to be worked. Certain restrictions apply, as the costs of acquiring the site or deposits are excluded unless expended to acquire land abroad under a foreign concession. The cost of abortive expenditure since 6th April,

1952, is allowable as an expense to a company working a mineral lease in determining the profits of the period in which the work was abandoned, to the extent that it would have been allowed had the source been worked.

Initial allowances are granted at the rate of 40 per cent, and annual allowances are applicable to the reducing balance method at a rate of 5 per cent, or, if greater, the amount represented by the fraction of the year's output over the potential output at the beginning of that year. Balancing allowances and charges are also made if necessary on the sale of the deposits or cessation of working. With the introduction of investment allowances an option has been given to take an investment allowance instead of an initial allowance in respect of expenditure on the construction of works of 20 per cent of the expenditure. The allowance is not to be taken into account in computing the residue of expenditure.

Scientific Research Expenditure.—When a company incurs capital expenditure for the purpose of scientific research relative to its trade, an allowance of 60 per cent is made in the first year and 10 per cent in each of the next four years of assessment, so long as the plant and buildings are retained for this use. An investment allowance may also be obtained, equal to 20 per cent of the expenditure on the construction of buildings and works or the provision of new machinery and plant, thus increasing the aggregate allowances to 120 per cent of the expenditure, as to 80 per cent in the first year and 10 per cent in each of the four next succeeding years of assessment. Upon cessation, a balancing allowance or charge is made, based on the market value of the asset if retained for normal use in the business, or on the proceeds of sale otherwise. Revenue expenditure on scientific research is, of course, an allowable expense for taxation purposes when incurred in relation to the trade concerned, or paid to an approved research association relative to the trade, or made to an approved university, college or research institution.

Acquisition of Patents.—Closely allied with research and development is the acquisition of patent rights, capital expenditure on which is allowed over seventeen years, or over the remaining life of the patent if less. The allowance extends to expenditure incurred in acquiring future patent rights to an invention not yet patented. The allowance is restricted to expenditure incurred since 6th April, 1946. When patents acquired on or since this date subsequently come to an end, or are sold, or partially sold for a price at least equal to the residue of expenditure unallowed, no annual allowance is granted for the relative assessment year. On a sale of a patent for which capital allowances have been received, balancing allowances or charges may be made, any charge being usually spread forward over six years' assessment by an assessment under Case VI of Schedule D, unless the company elects to be assessed for the whole sum in the year of receipt. Expenses incurred to obtain the grant, or extension, of a patent for the purpose of a trade are, of course, allowable deductions for taxation purposes.

Relief from Losses

The law provides relief from taxation in respect of a trading loss

ascertained in the same manner as the net statutory income of the company was computed for Case I of Schedule D.

Industrial companies almost invariably regard all their activities as constituting a single trade from a taxation point of view, so that any loss in one trade is set-off against the profits of another automatically. In any case, a company which carries on more than one trade in respect of which its profits are assessed under Schedule D is entitled to set-off the losses of one trade from the profits of any other and can render a separate return in respect of each trade.

When a company is unfortunate in sustaining a loss on trading, relief may be claimed either by carrying forward the loss to be set-off against the statutory income of future years, or immediate relief may be obtained by making a claim for repayment of tax suffered for that tax year in respect of any income for that year, whether by direct assessment or by deduction.

A claim for repayment requires a written application to be made to the inspector of taxes within one year after the fiscal year for which the claim is made, requesting an adjustment of liability by reference to the loss and the total income of the company for the year concerned. Strictly, the loss for which relief is claimed should be ascertained for the year of assessment by making appropriate apportionments of the income of successive accounting periods ; but the Revenue are usually prepared, except for the opening and closing years of trading, to give concessionary relief on the basis of the company's own accounting year ending within the fiscal year. For example, if the accounting year ends on the 31st December in each year, tax on the statutory income for the calendar year 1952 is payable on 1st January, 1954. If an adjusted loss occurs in the accounting year to 31st December, 1953, an amount equal to tax on the loss may be reclaimed from the amount paid on 1st January, 1954, as soon as the adjusted loss is agreed. Whether the adjusted loss is apportioned or not, the Revenue requires all succeeding claims to be on the same basis until a break occurs in their sequence. Statutory recognition has now been given to the concession allowed by the Revenue in respect of the amount of capital allowances not taken into credit for the year of loss, by permitting this amount to augment the loss for the purpose of relief or to convert an adjusted profit for taxation into a loss.

If relief is not given by repayment of tax, or by set-off against other chargeable income, for example, against property tax, the company may claim to have that part of the loss remaining carried forward indefinitely until set-off or deducted from future assessments under Schedule D in respect of the same trade. The relief when available cannot be deferred, but must be taken as soon as possible. As the loss remaining may be set off only against future assessments on the same trade, it is not surprising that it has been held that a company which succeeded to the business of another company could not, for taxation purposes, set off against its profits a loss incurred by the business succeeded to. Moreover, it cannot be assumed that so long as a company acts within the powers in its memorandum it must, therefore, be treated as carrying on a single trade.

In cases where a company pays an annual charge out of profits brought into charge to tax, and the company has sufficient income to cover the gross amount of the charge, it is entitled to deduct tax at the standard rate ; but the amount of the annual charge cannot be deducted in computing the profits of the trade, because relief from tax is available by means of the deduction of tax authorized. Where, however, the charge is paid otherwise than out of profits or gains brought into charge to tax, the paying company must deduct tax, and an assessment will be made on the company in order that the tax so deducted may be paid over to the Revenue. This position arises when the company is trading at a loss, but no deduction in respect of the payment can by law be made in computing trading results for taxation purposes, so that the loss cannot be increased by the amount of the annual charge on which the company has had to pay tax over to the Revenue. In order to align the position with the former case where the payment involved no additional assessment on the paying company which had retained the amount of tax, the amount on which tax has been deducted under the assessments will be treated as though it were a loss sustained in the trade. The payment must be wholly and exclusively for the purpose of the trade, not charged to capital and be finally borne by the company ; but in any event the arrangement does not extend to the payments for copyright royalties.

A special case of loss relief arises in certain circumstances when a loss is incurred in a business which is transferred to a limited company. The loss may be carried forward by the company for tax purposes if it continues the business and the transferor remains the beneficial owner of the shares during the whole year of assessment for which the claim is made, provided also the business was transferred to the company mainly as consideration for an allotment of shares by it to the transferor. This arrangement which enables loss relief to be set off against income received by the vendors from the company under their control does not, however, extend to arrears of capital allowances.

Payment of Tax

Payment of tax by companies assessed under Schedule D is due on the 1st January in the year of assessment, or on the day following assessment if the assessment is made later. Provisional assessments are usually made before 1st January if final agreement is likely to be delayed. Formal notice of appeal is required in such cases.

PROFITS TAX

Industrial companies are chargeable to profits tax as well as to income tax, but the present rates of profit tax are such that its incidence is mainly to surcharge distributed profits, for, whilst the amount of profits tax is based on the profits of the company for the accounting period as adjusted for this purpose, relief from the full rate of tax is given in respect of profits retained in the business. As will be noticed later, certain exemptions and other reliefs apply within prescribed profit limits and, in particular, exemption applies where the company's income for the year has been apportioned amongst its members and charged to surtax.

The liability for profits tax is based on an assessment made on the actual income of the accounting period, known as the chargeable accounting period, which normally equates with the usual accounting period of the company where accounts are compiled for successive periods of twelve months. The profits of the chargeable accounting period are adjusted in accordance with income tax principles, subject, however, to certain modifications. These adjustments ensure the elimination of any amounts of a capital nature and any expenditure which has not been wholly and exclusively incurred by the company for the purpose of earning the profits. Annual payments are usually deductible for profits tax, because profits tax being a tax on corporate bodies is not taxed at source on individuals. The annual value of premises owned and occupied by the company is not an allowable deduction in profits tax computations, as profits tax, unlike income tax, is not charged on the notional income from property. Artificial calculations are also generally avoided, so that, for example, the profits for the first accounts of a company do not enter into the assessments for the first three years of its existence as may be the case with income tax. In addition, the amount deductible for directors' remunerations in the case of director-controlled companies is restricted in accordance with the rules mentioned below under this heading, which apply, except as to the remuneration of full-time service directors, where the interests of the directors between them are sufficient to enable them to direct the policies of the company and to control the destinies of the company in general meeting. Another important variation in comparison with income tax computations lies in the fact that investment income must be included with the chargeable profits, although it is excluded from the amount on which profits tax is charged when, as franked investment income, it is received as a dividend or other distribution of the profits of a body corporate which is itself liable to profits tax, either directly from such a body or indirectly from a similar body. The system of capital allowances applicable to income tax for each fiscal year is also relevant to profits tax, but the allowances are granted as deductions in determining the profits chargeable and apportioned to the chargeable accounting period by reference to the fiscal years which the chargeable accounting period overlaps. Thus a chargeable accounting period which ends on 31st December, 1953, attracts one-quarter of the capital allowances and charges for 1952-53 and three-quarters of those for 1953-54. Investment allowances apply to profits tax as well as to income-tax. In its application to profits tax, the allowance is expressed as a deduction in arriving at the profit and is given in the accounting period in which the expenditure was incurred. This is a departure from the rule applicable to other capital allowances and provides the deduction a year earlier than would otherwise be the case. The same provisions apply to the withdrawal of the investment allowances for profits tax as apply to income-tax.

Abatement and Exemption Relief

Complete exemption from profits tax is given if the adjusted profits including franked investment income for any accounting period do not

exceed £2,000 before computing any abatement as mentioned below. The profits are regarded as nil for profits tax purposes for that year. Where the profits of any chargeable accounting period are more than £2,000 and less than £12,000 and there is no franked investment income, an abatement is made of one-fifth of the amount by which the profits are under £12,000. If, however, there is franked investment income, the abatement is calculated after the franked investment income (F.I.I.) has been included with the adjusted profits (A.P.), but is reduced in the proportion that the profits excluding franked investment income bear to the total profits inclusive of franked investment income, viz.:

$$\text{Abatement} = \frac{\pounds 12,000 - (\text{A.P.} + \text{F.I.I.})}{5} \times \frac{\text{A.P.}}{\text{A.P.} + \text{F.I.I.}}$$

Accordingly part of the abatement is regarded as being appropriate to the franked investment income. The abatement is, of course, proportionately reduced in respect of chargeable accounting periods of less than twelve months.

Non-distribution Relief

At the time of writing, chargeable profits are liable to profits tax at the rate of $22\frac{1}{2}$ per cent, but non-distribution relief at the rate of 20 per cent is granted for any part of the profits which are not distributed, so that the effective rate of profits tax for retained income is $2\frac{1}{2}$ per cent. Relief is thus given from the full rate for retained profits, but a distribution charge may be imposed upon distributions in excess of the profits of a chargeable accounting period, only, however, to the extent that profits in earlier years have enjoyed non-distribution relief. This distribution charge is an avoidance measure which discourages, for example, the absence of a distribution in one year followed by substantial distributions in the next year.

In view of the fact that profits tax is no longer an allowable deduction for income tax purposes, the rate of distribution charge now appropriate is 20 per cent and is subject to the limitation that the amount on which a distribution charge is made at this rate shall not exceed the amount on which non-distribution relief has been given at the same rate for chargeable accounting periods after 31st December, 1951, and the amount on which non-distribution relief was made at 40 per cent for 1951. The distribution charge on any excess is calculated, firstly, at 10 per cent to the extent of relief given at 20 per cent for the period from 1st October, 1949, to 31st December, 1950, and, secondly, at $7\frac{1}{2}$ per cent to the extent of relief given at 15 per cent for the period 1st January, 1947, to 30th September, 1949. These different rates which apply reflect changes in rates of profits tax over past years.

Distributions to Proprietors

For the purpose of computing profits tax, it is necessary to ascertain the "gross relevant distributions to proprietors" and the "net relevant distributions to proprietors". The gross relevant distributions comprise amounts distributed before deduction of income tax to shareholders of the company, that are not regarded as deductions from

income in determining taxable profits. These amounts include payments made, directly or indirectly, to shareholders by way of dividends, or cash bonus, or as assets in kind, or by way of remuneration, loans, or otherwise, to a member of a director-controlled company. However, payments by a company to repay a loan creditor or to reduce share capital are not regarded as distributions for this purpose. Although a distribution made from capital profits is not usually chargeable either to income tax or profits tax, the amount must, nevertheless, be included as part of the gross relevant distributions to reduce the amount of non-distribution relief available.

The remuneration of directors for profits tax purposes includes all sums, whether actually paid to the director or not, which are assessed under Schedule E for income tax as part of the salaries, fees, wages, perquisites or profits of his office as a director, or from any employment in which he is employed by the company. However, where a deduction is permitted for income tax purposes under Schedule E for moneys expended wholly, exclusively and necessarily in the performance of the duties, a similar deduction from the remuneration is permitted for purposes of profits tax.

The restriction on the allowable remuneration for profits tax purposes of a director of a director-controlled company does not apply to the remuneration of a whole-time service director who does not own more than 5 per cent. of the ordinary share capital of the company, or is unable, directly or indirectly, to control more than 5 per cent of such capital. With this and another exception mentioned below, the amount allowed as a deduction for the whole of the directors' remuneration in a director-controlled company is limited to 15 per cent of the profits, or £2,500, whichever is the greater amount, subject, however, to an over-riding maximum of £15,000 in all. The amount of any directors' remuneration which is thus disallowed as a deduction from profits is treated as part of the gross relevant distributions.

A measure of relief is also given in respect of the remuneration of directors who are required to devote substantially the whole of their time in the services of a director-controlled company in a managerial or technical capacity and are not whole-time service directors. Such directors may each hold directly or indirectly more than 5 per cent of the ordinary share capital of the company. The limits of allowable remuneration for profits tax purposes in the case of such directors are:

- £4,000 if there are two full-time working directors,
- £5,500 if there are three full-time working directors,
- £7,000 if there are four or more full-time working directors,

for more than half the chargeable accounting period. These fixed limits are proportionately reduced if the chargeable accounting period is less than twelve months in duration.

There are, however, certain restrictions in the application of these allowances. The amount allowed as a charge in determining the profits of the chargeable accounting period is limited to the aggregate of their actual remuneration for the period, less the excess remuneration of the highest paid full-time director over £2,500 and the excess of the remuneration of each of the other full-time working directors over

£1,500. However, if the remuneration of the highest-paid director is less than £2,500, any deficiency may be used to increase the limit applicable in the case of the other directors. If more than one director has the same amount of remuneration, one director with that remuneration is regarded as the highest paid.

Loans to director shareholders are regarded as part of the gross relevant distributions ; but in subsequent years when a loan is repaid, a corresponding relief is granted by means of a reduction of that year's distribution. As regards loans repaid which for any period after the end of 1951 were taken as forming part of the gross relevant distributions, the amount of the net relevant distributions for the period in which repayment is made is reduced by the amount tax on which at 20 per cent is equal to the increased profits tax which was paid when the loan was made. Where, however, in the period in which the loan is repaid, a distribution charge would have been made, the net relevant distributions are reduced in accordance with rates established for this purpose and which apply also in relation to loans made before the end of 1951, but in the latter cases the reductions are halved.

Special rules apply in determining the time of a dividend declaration in respect of the gross relevant distributions, although it is normally treated as having been declared on the date of payment. Dividends declared within six months after the end of a chargeable accounting period and expressed as paid for that period are included in the gross relevant distributions for that period. Any other distributions made during that period are included in the amount of gross relevant distributions for that chargeable accounting period except dividends treated as gross relevant distributions to proprietors for an earlier chargeable accounting period. In the final chargeable accounting period of a company, the gross relevant distributions include so much of any distribution made after the end of the period as is not a capital distribution. However, a scrip issue is not ordinarily regarded as a distribution for this purpose, because the company so distributes only amounts capitalized, but if the scrip issue is preceded or followed by a reduction of capital, an addition is made to the gross relevant distributions, equal to the lower of the amount of the scrip issue or the amount of the capital reduction. This avoidance provision applies to any distributed sum capitalized since 6th April, 1949, provided the capital reduction takes place after 10th April, 1951. Moreover, if the capital is first reduced after this date and any distributed sum is then or subsequently capitalized, a similar adjustment must be made to the gross relevant distributions, for which purposes a special formula is used in certain cases.

If the trade of a company is transferred to another company as part of a scheme of amalgamation or reconstruction in consideration wholly or partly of shares in the transferee company, both companies may elect in writing, normally within six months after the transfer, that the distribution of shares in the transferee company will not be regarded as a distribution for profits tax purposes. Assume that in order to facilitate a scheme of capital arrangement, the business of A. Limited is transferred to B. Limited, in consideration for the issue to members

of A. Limited of shares in B. Limited. Normally, the amount of distribution to members of A. Limited will be equal to the excess of A.'s assets (including the shares in B. Limited) over the nominal value of its paid-up capital. However, if both companies elect as above, the value of the shares in B. Limited will be ignored in computing the amount of the distribution to members of A. Limited for the final chargeable accounting period of that company. In considering what distribution charges may be made on the transferee company, any balance of non-distribution relief that has not served to increase a distribution charge on the transferor company must be treated as non-distribution relief of the transferee company, and must also be taken into account in the last accounting period of the transferee company, in order to increase the amount which is not to be treated as a distribution of capital. The same rate or rates of profits tax are applied to the transferee company as would have applied to the transferor company.

Ascertainment of Non-Distribution Relief

When the amount of profits tax has been computed on the profits chargeable to tax for the chargeable accounting period concerned, it becomes necessary to ascertain the measure of relief from profits tax which is available in respect of profits retained in the company. This is done by comparing the net relevant distributions to proprietors with the chargeable profits, *i.e.*, the adjusted profits less any abatement. For this purpose reference is necessary to the amount of the gross relevant distribution (G.R.D.).

If the gross relevant distributions exceed the total profits, *i.e.*, adjusted profits (A.P.) plus franked investment income (F.I.I.), but excluding any abatement, then the net relevant distributions (N.R.D.) equal the gross relevant distributions less any abatement (A.) and franked investment income (F.I.I.).

i.e. When $G.R.D. > (A.P. + F.I.I.)$, then $N.R.D. = G.R.D. - A. - F.I.I.$

Hence, if there is no abatement because the adjusted profits plus franked investment income exceed £12,000, the net relevant distributions equal the gross relevant distributions less franked investment income.

i.e. When $A.P. + F.I.I. > £12,000$, then $N.R.D. = G.R.D. - F.I.I.$, as $A. = 0$.

In the absence of franked investment income, the net relevant distributions equal the gross relevant distributions and no relief is available.

i.e. When $A.P. > £12,000$ and $F.I.I. = 0$, then $N.R.D. = G.R.D.$,
as $A. = F.I.I. = 0$.

If the gross relevant distributions are less than the total profits, then

$$N.R.D. = G.R.D. \times \frac{A.P. - A.}{A.P. + F.I.I.},$$

so that the gross relevant distributions are reduced according to the ratio of net profits to total profits, and a proportionate part of the

gross relevant distributions is regarded as having been paid out of abatement relief and taxed profits (F.I.I.). As before,

$$\text{N.R.D.} = \text{G.R.D.}, \text{ when } \text{A.} = \text{F.I.I.} = 0.$$

If the adjusted profits plus franked investment income exceed £12,000, so that abatement relief does not arise, a proportionate part of the gross relevant distributions is considered as payable from taxed profits ;

$$\text{i.e. N.R.D.} = \text{G.R.D.} \times \frac{\text{A.P.}}{\text{A.P.} + \text{F.I.I.}}$$

In cases where the accounting period does not coincide with the chargeable accounting period, an apportionment is made as may be necessary to the gross relevant distributions ascertained for the accounting period.

In the result, the profits chargeable to profits tax at the full rate, at present $22\frac{1}{2}$ per cent, are reduced by a relief of 20 per cent on the difference between the gross and net relevant distributions, provided the net relevant distributions are less than the adjusted profits ; *i.e.*, distributed profits are charged to tax at $22\frac{1}{2}$ per cent, whilst retained profits are charged at $2\frac{1}{2}$ per cent only. On the other hand, if the net relevant distributions exceed the adjusted profits chargeable to tax, a distribution charge falls to be made against the company on the amount of the difference at the rate at which non-distribution relief is granted. The full rate of $22\frac{1}{2}$ per cent is charged on the profits for the period which are by hypothesis considered to have been distributed and the relief rate of 20 per cent is charged in addition on the extra amount distributed. However, this extra charge is limited, so that the aggregate charges will not exceed the aggregate of the non-distribution reliefs given for previous chargeable accounting periods.

SURTAX CHARGES ON COMPANIES

Although individuals whose total incomes exceed £2,000 p.a. are chargeable to surtax on an increasing scale, surtax is charged on certain companies only under exceptional circumstances, but in such cases profits tax is not charged as well for the period concerned.

After the First World War some people avoided the payment of surtax through the intermediary of a company in which they were shareholders, for example, by incurring loans from the company and limiting their taxable income to actual dividends received. After the last war the authorities feared that companies would distribute excessive dividends and so encourage inflation. Remedial action was taken in each case. In the first case, power was given to the Inland Revenue authorities to assess shareholders to surtax, at the rate applicable to the highest part of their income, as if the income of their companies had been distributed, on the basis that the companies paid when the shareholders failed to do so. In case of default by the company, the tax is recoverable from the members, but there is no provision whereby a company which has paid surtax can recover the amount from its members. In the second case, profits tax was imposed on companies at gradually increased rates, and this was fortified for

the years 1952 and 1953 by the imposition of the Excess Profits Levy, designed to siphon away any excess profits from the rearmament effort. Thus, a company which is within the provisions relative to profits tax and surtax can be charged to surtax if it fails to make distributions and to profits tax if it makes a distribution, subject, however, to a saving section, that if a company is subjected to a surtax direction it will not be subjected to profits tax for the same period. An important assurance was given in 1947 by the late Sir Stafford Cripps when Chancellor of the Exchequer as follows, although in the case of investment companies, the Special Commissioners have no option other than to make a direction to surtax :

“ It is not the practice in present circumstances to take action against a trading company under section 21 in a *bona fide* case where the rate of dividend is the same as that which was accepted by the Special Commissioners as reasonable in previous periods, even though the company's profits have increased. It is not necessary that there should have been any formal application to, or correspondence with, the Special Commissioners about the earlier periods. If, in fact, no directions have been made for the periods ending before June, 1947, the company may assume that its action was regarded as reasonable. If, for special reasons, no dividend at all was declared in the periods before June, 1947, and directions were not made by the Special Commissioners, they will not in present circumstances challenge the continuance of the company's policy. I must emphasize that this answer deals only with *bona fide* cases and will not apply where there are avoidance devices, such as the withdrawal of money from the company in the guise of capital.”

S. 21 of the Finance Act, 1922, as subsequently amended and consolidated in the Income Tax Act, 1952, applies to any company incorporated in the United Kingdom which is under the control of not more than five persons and which is not a subsidiary of a company which is itself not subject to a direction, or a company in which the public is substantially interested. A precise definition is given to a company in which the public is substantially interested ; in general terms, it covers a company whereof at least 25 per cent of the beneficial interest in the equity shareholding is unconditionally held by the public and the shares have been officially quoted on and dealt with during the year concerned in a stock exchange in this country. For the purposes of the section, certain classes of persons are treated as a single person, viz., relations, a nominator and his nominees, partners, beneficiaries under a trust or persons interested in the estate of a deceased person.

A company is deemed to be a controlled company for this purpose if one of the following tests applies :

(a) Control test—where any five or fewer “ persons ” together are in a position to exercise or acquire control, direct or indirect, over the company's affairs. There needs to be at least eleven members in order that five persons may not command more than half the voting power, which is the usual method of obtaining control, except when the shareholding or voting power is held by ten persons equally. Of course, indirect control may arise in various ways.

(b) Capital test—where any five or fewer “ persons ” together are in

a position to acquire the greater part of the authorized or issued share capital. Presumably the intention here is to defeat any arrangement whereby the shareholders try to evade the section by giving the control to others.

(c) Income test—where any five or fewer “persons” together are able to obtain such part of the issued share capital as would enable them to receive the greater part of the company’s distributed income. The intention here is apparently to prevent evasion by placing the voting power and the major part of the capital into the hands of more than five persons, at the same time leaving not more than five persons entitled to the greater part of the income.

(d) Where the greater part of the income of the company could be apportioned among not more than five “persons”, who need not necessarily be shareholders, if the apportionment provisions of the section were applied to the company.

The liability to surtax arises when the Special Commissioners by written notice to a controlled company direct that its income shall, for a period specified, be deemed to be the income of its members for the purpose of assessment to surtax. The onus of proof is on the Commissioners to satisfy themselves that there has not been a reasonable distribution. They are required to have regard to the current needs of the company’s business and such other needs which are necessary or advisable for the maintenance and development of the business, bearing in mind that income for certain specified uses is not within this definition, as, for example, where income has been used for capital purposes, or in the expenditure or application of any sum in pursuance of or in consequence of any fictitious or artificial transaction. In order to qualify as a distribution, the income must fall to be included in the members’ total income for surtax purposes; therefore, when income is capitalized and distributed as a scrip issue, it falls outside the meaning of the term “distribution” as it does not attract surtax in the hands of the recipient.

A company to which the section applies may, by following a prescribed procedure, compel the Commissioners to decide within specified time-limits whether or not they will make a direction to a surtax charge in respect of its income for a particular period. Where the Special Commissioners have taken preliminary steps or actually issued a direction to surtax under the section, the directors of the company concerned may be able to close the issue by making a statutory declaration in accordance with the Act, to the effect that they are of the opinion that there has not been and will not be any avoidance of surtax through failure to distribute a reasonable part of the income and giving their reasons for this opinion. If the Commissioners do not agree with the directors’ declaration, the matter is referred to the Board of Referees to decide finally whether a *prima facie* case exists for further action.

In order to prevent evasion of the section by a company which unreasonably withholds income by the interposition of another company, which, not being an individual, is not normally liable to surtax and is otherwise out of the scope of the section as the income

apportioned to it from the original company is not its actual income, provision has been made whereby the original income may be apportioned and sub-apportioned through any chain of "S. 21 Companies", until the original income has been finally apportioned to persons other than a "S. 21 Company", that is, either to individuals or to bodies corporate outside the scope of the section.

PART III

BASIC FINANCIAL POLICIES

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Note : References made to “the Act” relate to the Companies Act, 1948, unless the context implies otherwise.)

CHAPTER 15

DEPRECIATION POLICY

CAPITAL expenditure on tangible assets is regarded as a reservoir of earning power or deferred cost to be written off or depreciated over the useful life of the assets as benefit accrues. For fixed assets are held for use in earning income and not for sale in the ordinary way of business.

The process of depreciating plant and other assets is a paper transaction which allocates part of their original cost to each accounting period as a charge against revenue. In the result gross trading profits are reduced by the depreciation charge with a corresponding retention within the business of the amount provided for depreciation. Depreciation provides for the loss, not restored by current maintenance, which arises as the result of wear and tear through use, from deterioration through time due to weathering and decay and from inadequacy and gradual obsolescence until the eventual retirement of the asset. If depreciation charges were not made, shareholders' capital, having been expended on assets eventually amortized and retired from use, would no longer be represented by assets of earning power. Thus, in effect, capital would gradually be returned to shareholders, who would nevertheless retain a claim on the equity. Therefore, depreciation policy tends to preserve production capacity or earning power and to avoid over-distribution of dividends and calls to replace used capital assets. It would clearly be wrong to assess depreciation rates below sound economic levels in order to show a net income sufficient to justify dividends.

The rate of depreciation may be either a linear or an increasing function of time and may be either independent of or related to the use rate. The amount of depreciation provided is an allocation of historical cost on a "going concern" basis which measures the earning capacity absorbed in the service of the company, *i.e.*, content of user, and does not necessarily represent the monetary fall in value of the assets over each accounting period. The residual value of the assets remaining at any time represents the unused portion of cost and not necessarily their residual value. Accordingly, the amount at which assets stand in the balance sheet does not necessarily purport to be either their realizable value or their replacement cost. This approach to depreciation accounting in times of stable monetary values gives an economically correct allocation for all practical purposes, but in times of monetary instability, as will be exemplified later, the determination of economically correct charges against revenues require that consideration be given to changes in the value of money.

Methods of Depreciation

The process of amortizing the original cost of plant over its estimated

useful life tacitly assumes that by depreciating plant on a time basis it is automatically amortized on an earnings basis. Whilst this assumption may be valid throughout the whole life of the plant, the coincidence does not necessarily apply each year, because more earning power is absorbed in a period of abnormal activity when resources are being used to a greater extent than in periods of less activity. The precise method of depreciation adopted is a matter of choice dependent on the nature of the asset concerned and the degree of precision required. The estimated useful life and the residual value of fixed assets can only be matters of opinion probably needing periodical adjustment during the useful life of the plant, which, in practice, often continues not until the assets become completely useless, but rather for some time after their replacement would prove economical.

In the case of general plant, such as machine tools, the straight-line method of depreciation, whereby a fixed proportion of the original cost of the plant, with or without regard to its residual value, is written off each year and charged against profits affirms the relevance of the time-factor to depreciation and acknowledges the empirical nature of the allocation. As output expands, the depreciation cost per unit of output will always decrease, and conversely, as output falls, the unit cost of depreciation will increase. This flat-rate basis has the merit of simplicity, and readily provides the book value of a particular unit of plant when its disposal is contemplated.

Alternatively, the reducing-balance method may be used to express the time-element in depreciation, whereby a fixed percentage of the residual cost of the plant is written off each year and charged against revenues. Residual values may, in the absence of tables, be ascertained by reference to the formula

$$RV = P \left(\frac{100 - r}{100} \right)^n$$

where

RV = residual value ;

P = original cost ;

r = annual rate of depreciation per cent of diminishing value ;

n = number of years.

Whilst the fixed instalment method writes off a constant part of the original cost year by year, the reducing-balance method involves relatively heavy charges in the earlier years of the life of an asset and relatively lighter charges in later years. The fact is not generally appreciated that the provision of depreciation under the reducing-balance method over a given period requires the application of a percentage from two to three times that applicable under the straight-line method. For this reason, care is needed in using the reducing-balance method to ensure that the rate used is adequate to amortize the asset over its useful life. As repair and maintenance charges usually increase with the life of plant and machinery, the reducing-balance method has the advantage over the straight-line method of making for a more constant charge for depreciation and maintenance combined from year to year.

Where, as in the case of highly-specialized plant, the influence of service is important, allocation of depreciation may be appropriately related to output, by apportioning the original cost of the plant according to the proportion that the actual output of the year has to the estimated total output obtainable over the life of the plant. The adoption in this way of a normal standard burden based on the expected outputs over the life of the plant provides a constant per unit burden cost over all accounting periods, and so facilitates price-fixing decisions. In other cases, it may be desirable to allocate depreciation either according to the straight-line method or to the service method, whichever presents the greater charge, or part of the original cost may be allocated on a time basis and the other part on a service basis, dependent upon the particular considerations involved.

None of these methods guarantees that cash will be available on the retirement of the plant from active use in order to provide wholly or partly for its replacement. The result is otherwise under conditions of monetary stability, when the fund method, usually referred to as the depreciation fund, amortization fund or sinking fund method, is adopted. With this arrangement, the asset remains recorded in the books of the company at its original cost and a fixed instalment is charged each year to profit and loss account and credited to a depreciation fund account. At the same time, a corresponding amount of cash is withdrawn from the cash account and invested in gilt-edged securities, thereby appearing as a debit to an investment account. The annual instalments are fixed at such amounts as will accumulate at compound interest during the life of the plant to provide at the end of its useful life a sum equal to its original cost. When the investments are ultimately realized, the cash account is augmented and the investment account is accordingly depleted. The depreciation fund is written off against the asset account and both are thus eliminated from the record. Cash is thus made available to replace the amount originally expended. Any difference on realization of the assets is a charge or credit to the appropriation section of the profit and loss account. As this method takes account of the anticipated income from funds set aside, the correctness of the results depends upon the net rate of interest visualized being earned, in spite of possible changes in taxation rates, and the cost of the investments being realized. In the absence of tables, the formula used to calculate the sinking fund instalment to be set aside annually to produce £1 at the end of n years is

$$\frac{\text{Interest rate per cent}}{\text{Total amount of compound interest in } n \text{ years}} \cdot$$

The internal use of plant depreciation funds instead of their outside investment requires an increasing charge for depreciation in the annual accounts, because the fixed annual or periodic instalment needs supplementing by an amount equivalent to interest earnings on past provisions. In addition, amounts retained within the business will almost automatically become part of the company's working capital to finance stock-piling, or a greater volume of activity, unless a rigid

control is exercised, and a critical position will arise if cash is not available when needed for plant replacements. On the other hand, resources employed as working capital may prove to be more lucrative investments than gilt-edged securities.

Obsolescence arises when a unit of plant is replaced by improved equipment before its anticipated useful life is exhausted. In the case of a company which pursues an unprogressive policy regarding plant obsolescence, considerable capital expenditure is likely to be eventually required for modernization programmes in order to meet competition from more progressive companies. Where the reduced cost of manufacture per unit of output from improved plant effects a total annual saving greater than the residual cost of the plant which is replaced, it is usually wise to make the change, even though other considerations, such as improved quality of output and the need to provide for a higher established plateau of demand, are not involved. The unit cost of production for the level of output at which plant is normally operated is more relevant in making this comparison than the unit cost at maximum output. The co-operation of operatives is required if the policy is to be effective, for resistance to change often prevents new plant being operated efficiently. In cases where plant and machinery are particularly susceptible to obsolescence, an obsolescence fund may be created from appropriations of profit on the sinking fund method in order to make funds available to replace plant when opportunities for cost reductions arise. In other cases, conservative depreciation periods should be assumed, or depreciation provisions should be augmented by a fractional increase in the annual amounts strictly required, in order to cover the prospective incidence of obsolescence. Progressive companies engaged in mixed production augment their earning power gradually by ensuring that annual replacement of plant at least equates with depreciation provisions.

Depreciation Accounting during Inflation

When the purchasing power of money declines during a period of inflation, the amounts normally provided for depreciation of the cost of fixed assets acquired before the purchasing power of money declined will be insufficient to provide for their replacement cost, whilst prices remain inflated. Accordingly, various methods have been suggested in order to ensure, as far as practicable, that the extra amounts required for replacement purposes under these conditions will be available, although as mentioned at the close of chapter 8, various accounting anomalies arise in making financial provisions in this respect.

Whatever action is finally taken will depend, of course, on the financial circumstances of the company at the time the plant is due for replacement and any arrangements made in the meantime to meet this eventuality will necessarily be conditioned by the state of trade from year to year and the degree of monetary instability. Accordingly, the following pages regarding depreciation accounting during inflation and the hypothetical examples shown must be regarded as being merely illustrative of the general procedure, and of the various accounting

anomalies which arise, and not necessarily applicable to particular cases. The revaluation method, the current value method and the renewals method will be considered in turn, although no general measure of agreement exists in the accountancy profession regarding the extent to which, and the manner in which, changes in the value of money may be properly reflected in balance sheets.

Revaluation Method. When plant is revalued, the valuation is entered on the balance sheet and the excess of the revaluation figure over historical cost, less depreciation, is shown on the opposite side of the balance sheet usually as a capital reserve in conformity with the accounting rule that every debit has a credit. The amount is shown as a capital reserve to indicate that it cannot prudently be regarded as available for distribution in dividends, as the amount represents merely the result of a paper transaction which is not, at this stage, reflected in realizable assets. Subsequent depreciation charges will be made to amortize the replacement cost of the assets over their remaining life provided the purchasing power of money remains constant. If asset values increase still further before monetary values stabilize, figures are subsequently shown as profits after charging depreciation on values which represent neither replacement cost nor historical cost. When the established value of the assets has been fully amortized through making any additional provisions required to normal depreciation charges and the assets have been replaced by correspondingly depleting the cash account, the further accounting anomaly arises that the capital reserve created becomes available for dividend payments, although the amount has never appeared as a profit in the accounts. This anomaly may be avoided, however, by using the capital reserve so created as the basis for an issue of share scrip, thus bringing the issued capital of the company into line with monetary values at the date of revaluation.

If adjustments are made to reflect the replacement values of assets when the purchasing power of money declines, it may be considered that opposite adjustments should be made if the purchasing power of money increases. It will be appreciated that the basic conditions in these events are not identical, for when the purchasing power of money declines, it is important to ensure that adequate provision is made through prices and profits in order to avoid, as far as practicable, any future erosion of real capital and earning power; whereas, in the opposite case, depreciation charges may need to be reduced to give price concessions to customers in order to maintain a satisfactory level of demand for profitable industry.

SIMPLIFIED BALANCE SHEET

(Before Plant Revaluation)

Capital	£ 200,000	Book value of plant	£ 100,000
Retained profits	200,000	Other net assets	300,000
	<hr/>		<hr/>
Total	400,000	Total	400,000
	<hr/>		<hr/>

On the assumption that the revaluation gives a figure of three times the historical cost less depreciation, the balance sheet appears as follows after revaluation

(After Plant Revaluation)

Capital	£ 200,000	Revised book value of plant	£ 300,000
Capital reserves	200,000	Other net assets	300,000
Retained profits	200,000		
	<hr/>		<hr/>
Total	600,000	Total	600,000
	<hr/>		<hr/>

The revised book value of plant is stated as amounting to £300,000, on the assumption that the original cost was £200,000, from which £100,000 has been deducted as depreciation to give a book value of £100,000, indicating that depreciation had been made (assuming linearity of depreciation provisions) for half of the assumed life of the plant and the assumed replacement cost has been regarded as thrice the historical cost.

The next stage assumes that by the time the plant has been fully depreciated, the net value of other assets has increased in value as shown as the result of depreciation provisions and retained profits being reflected in realizable assets.

Immediately before Replacement

Capital	£ 200,000	Plant as revalued	£ 300,000
Capital reserves	200,000	Depreciation	300,000
Retained profits	600,000		
	<hr/>	Book value of Plant	nil
		Other net assets	1,000,000
	<hr/>		<hr/>
	1,000,000		1,000,000
	<hr/>		<hr/>

When the plant has been replaced, its cost appears without depreciation as an asset and the amount of other net assets is correspondingly reduced by the cash outlay assumed.

Immediately after Replacement

Capital	£ 200,000	Plant	£ 600,000
Reserves	200,000	Other net assets	400,000
Retained profits	600,000		
	<hr/>		<hr/>
	1,000,000		1,000,000
	<hr/>		<hr/>

In this case, the scrip issue assumed capitalizes all the reserves and part of the retained profits.

After 2 : 1 Share Scrip Issue

Capital	£ 600,000	Plant	£ 600,000
Retained profits	400,000	Other net assets	400,000
	<hr/>		<hr/>
	1,000,000		1,000,000
	<hr/>		<hr/>

If, when a plant revaluation has taken place in accordance with this method, inflation continues and replacement values increase substantially before monetary values stabilize, a further revaluation may be made.

Current Value Method. As an alternative to the revaluation method, the current value system of reflecting monetary changes may be adopted by expressing depreciation in values based on the current prices of the relevant assets at the close of each year of their use and not in relation to their historical or assumed replacement cost. During a period of continually rising prices, appropriations of profit will be required as specific reserves in order to accumulate the full amount needed to cover the replacement cost of fixed assets because the amounts already charged will be inadequate. The total amount then shown in the balance sheet equals the full amount required for replacement purposes, but an accounting anomaly arises in respect of amounts set aside for each year in excess of normal depreciation charges based on original cost. Part of the amount reserved will have been treated as a charge in ascertaining profits, but will be shown in the balance sheet as a reserve forming part of the shareholders' equity available for dividend payments when the asset is replaced and the reserve is no longer regarded as being of a capital nature.

SIMPLIFIED BALANCE SHEET
(After Accumulation of Reserves)

	£		(Inflation)
Capital	300,000	Plant at cost	100,000
Reserves :		Less historical depreciation	100,000
Charged against profits (a)	125,000		
Appropriated from profits (b)	75,000	Other net assets	500,000
	<u>200,000</u>		
	£500,000		£500,000

(a) to relate each year's historical depreciation charge to current replacement cost of plant ;

(b) to adjust (a) for continued increase in replacement costs.

(After Replacement of Plant)

	£		£
Capital	300,000	New plant at cost	300,000
Reserves	200,000	Other assets	200,000
	<u>£500,000</u>		<u>£500,000</u>

In a deflationary period, when current replacement values are below historical cost, any excess amount which has not been covered by depreciation provisions made on the basis of current values would be charged against any available capital reserves or set off against unappropriated profits or charged against current profits, in order to eliminate from the balance sheet the excess of the historical cost of the assets over their replacement cost. For example, assume as a continuation of the previous example that £200,000 is sufficient at a later date to

replace plant which originally cost £300,000 and, for simplicity, that the transfer mentioned is deferred until replacement.

SIMPLIFIED BALANCE SHEET				(Deflation)	
(Before Replacement of Plant)					
	£		£		
Capital	300,000	Plant at cost	300,000		
Reserves	200,000	Less depreciation	200,000		
		Other assets	100,000		
			400,000		
	<u>£500,000</u>				<u>£500,000</u>
(After Replacement of Plant)					
	£		£		
Capital	300,000	New plant	200,000		
Reserves	100,000	Other assets	200,000		
	<u>£400,000</u>				<u>£400,000</u>

Renewals Method. The renewals or replacement method of providing for the replacement of fixed assets requires charges to be made against annual revenues to provide the amount required, in place of annual depreciation charges normally made to amortize their cost over their useful life. Trading results are distorted when round sums are set aside as general provisions against renewals without regard to normal depreciation practices. An accumulative basis is necessary in a period of increasing inflation in order to cover under-provisions previously made, and practical difficulties may arise when the incidence is to place heavy burdens on particular years. If the profits are assessed without covering the full cost of renewals, the profits shown are based neither on the historical costs nor the replacement costs of fixed assets.

SIMPLIFIED BALANCE SHEET				(Inflation)	
(Immediately before Renewal)					
	£		£		
Capital	500,000	Plant at cost	200,000		
Renewals a/c	£	Other net assets	1,000,000		
Original provisions	200,000				
Extra appropriations	400,000				
Retained profits	100,000				
	<u>£1,200,000</u>				<u>£1,200,000</u>

If the balance sheet is to continue to show the actual cost of fixed assets in use, the cost of replaced plant is charged to the renewals account.

(After Renewals—Renewals Cost Basis)					
	£		£		
Capital	500,000	Plant	600,000		
Reserve	400,000	Other net assets	400,000		
Retained profits	100,000				
	<u>£1,000,000</u>				<u>£1,000,000</u>

If prices have been increasing, a balance is shown on the renewals account which is regarded as a reserve forming part of the shareholders' equity and thus available for distribution in dividends although the amounts comprising it may not have been shown as profits. This anomaly is avoided when the cost of replacement assets is charged against the renewals account, so that the balance sheet continues to show the cost of the original assets no matter how often these are replaced.

(After Renewals—Historical Cost Basis)

Capital	£	500,000	Plant	£	200,000
Retained profits		100,000	Other net assets		400,000
		<u>£600,000</u>			<u>£600,000</u>

In a period of deflation when replacement cost is less than historical cost, annual provisions for renewals need be made sufficient only to cover when accumulated the replacement cost of the assets concerned as illustrated by the following example which is independent of the previous one.

SIMPLIFIED BALANCE SHEET

(Immediately before Renewal)

(Deflation)

Capital	£	300,000	Plant	£	200,000
Renewals account		100,000	Other net assets		250,000
Retained profits		50,000			
		<u>£450,000</u>			<u>£450,000</u>

The cost of replacement assets may be charged to the renewals account so that the balance sheet continues to show the original historical cost.

(After Renewals—Historical Cost Basis)

Capital	£	300,000	Plant	£	200,000
Retained profits		50,000	Other net assets		150,000
		<u>£350,000</u>			<u>£350,000</u>

If, on the other hand, the replacement cost is shown in the balance sheet and the cost of the plant replaced is partly used to eliminate the renewals account, the balance remaining to be amortized in the plant account will need to be satisfied by an appropriation of accumulated profits or by an additional charge against current revenues, so matching historical costs. If this cannot be done, then the method is inapplicable. If, taking the figures of the above example, the cost of replacement plant is to be brought into the balance sheet, the historical cost of £200,000 would need to be set-off against the renewals account, which, being only £100,000 leaves the balance to be appropriated from reserves and retained profits. As these are assumed to amount to only £50,000 the method is inappropriate in this case.

CHAPTER 16

PLANT REPLACEMENT POLICY

ALTHOUGH industrialists often complain of the inadequacy of plant lives which are allowed by the Inland Revenue authorities in making wear-and-tear allowances in tax computations, plant is usually kept in use for very much longer periods than those recognized for this purpose. Indeed, a proximate cause of the unsatisfactory living standard of this country arises from a general failure over a long period of years to modernize plant and to ensure a greater degree of mechanized activity in order to obtain that increased measure of production and productivity necessary to counteract the effect of the relatively unfavourable economic position in which the country is placed. However, the system of investment allowances should help to overcome this inertia.

The provision of liberal depreciation permits a realistic policy of plant replacements, which often provides not only the means to increased outputs and improved qualities, but also to reduced maintenance costs and to less down-time from plant being out of commission for repair and overhaul. For the opportunity often arises, when plant replacements are made, for technical advantages to be obtained which effectively increase "horse power" per man-hour in the search for greater productivity and reduced unit costs. For when labour is dear, the apparently expensive machine is often cheap. Thus the adoption of a progressive policy for plant replacements helps to pay dividends. It is often desirable to incorporate a measure of versatility in replacement plant in order to permit economical change to other products, or an alteration in the output ratios of allied products. When this type of flexibility is sacrificed by undertaking the economic risks of intensive specialization, a relatively considerable reduction in cost may be secured. The achievement of economies through intensive specialization and the integration of processes, whereby one composite machine replaces several unit machines, is practicable only when there is an adequate level of assured demand for the product. This condition is usually more appropriate to the large-scale company, where heavy capital outlay is entailed in the acquisition of composite and highly specialized plant.

As a general rule, in enquiring as to the profitability of replacing plant, capital expenditure incurred on new plant will provide an economical investment if the present worth of its residual value at the end of the normal working life of the existing plant and of the operative savings meanwhile exceeds the additional net investment in plant. The figure representing the additional net investment in plant equals the installed cost of the new plant less the residual value of the existing plant, plus or minus, respectively, any capital loss or gain on the disposal of the existing plant. The present worth of money payable or

available at some future date is clearly only so much as would have to be invested now, at the prevailing rate of interest, to yield the specified amount at due date. The present worth is simply P , the principal, which will yield the amount A in n years at r per centum per annum, where f is a fractional part of a year: $A = P\left(1 + \frac{r}{f}\right)^{fn}$. Even when no operative savings arise, but technical changes result solely in an improved quality of product, the new unit of plant may be profitable if a higher plant load factor, induced by increased demand for the product, yields additional gross profits. The net worth of the additional gross profits plus that of the residual value of the new plant at the end of the normal working life of the existing plant needs to exceed the additional net investment in plant as already mentioned. By way of illustration, assume the following figures:

	<i>Present Plant</i>	<i>Proposed Plant</i>
Present value	£5,000	£20,000
Normal life	5 years	10 years
Annual cost of operation	£10,000	£8,000
Residual value in five years	£1,000	£11,000

The calculations required are:

Present Worth of Operational Savings at 4 per cent p.a.

	£	£
First year	$\frac{100}{104} \times £2,000 = 1,923$	
Second year	$\frac{100}{108.16} \times £2,000 = 1,849$	
Third year	$\frac{100}{112.48} \times £2,000 = 1,778$	
Fourth year	$\frac{100}{116.98} \times £2,000 = 1,710$	
Fifth year	$\frac{100}{121.66} \times £2,000 = 1,644$	
	<hr/> £10,000	8,904

Present Worth of Residual Value of New Plant at end of five years at 4 per cent p.a.

$\frac{100}{121.66} \times £11,000$	9,042
	<hr/> 17,946

Additional Net Investment in Plant

	£	
Installed cost of new plant	20,000	
Residual book value of existing plant	5,000	
	<hr/> 15,000	
Assume capital loss on sale	1,000	16,000
	<hr/> Financial advantage	<hr/> £1,946

Average annual financial advantage $= \frac{1,946 \times 100}{5 \times 16,000} = 2.43$ per cent as per cent of net investment

If the financial advantage shown by this example had been calculated with regard only to the total anticipated savings and residual value of new plant, and not to their net worth, the resultant percentage saving would be approximately 6 per cent, in comparison with the saving shown of 2·43 per cent—a significant difference in view of the amount of the investment and the shortness of the period.

Alternatively, in view of the amount involved and the short period concerned, an approximate result may be obtained without reference to precise calculations of present worth as follows :

	£	£
<i>Operational savings</i>	10,000	
Less say 4 per cent for 2½ years . .	1,000	9,000
	<hr/>	
<i>Residual value of new plant in five years</i> . .	11,000	
Less say 4 per cent for 5 years . .	2,200	8,800
	<hr/>	
<i>Net installed cost of new plant</i>		17,800
		<hr/>
Approximate financial advantage		£1,800
		<hr/>

Although this chapter has focussed attention mainly on the financial aspect of plant replacement policy, it is of vital importance to give full and impartial consideration to the engineering aspect when considering replacement plant, *e.g.*, appropriateness to purpose, accuracy of performance, reliability of operation, output performance in relation to anticipated production requirements, servicing arrangements, availability of spares (particularly wearing parts), and operational requirements for specialized labour. In this age of scientific progress, one should endeavour to go at least part of the way to the ultimate ideal of "automaton," in so far as economic considerations permit refinements towards complete mechanization of processes and the automatic control of output and quality.

CHAPTER 17

STOCK EVALUATION

PROGRESSIVE stages in the production and sale of manufactured goods are represented by stores, raw materials, work-in-progress and finished stocks. Periodical valuation of stock-in-trade and work-in-progress is necessary for the completion of the profit and loss account and the balance sheet. Stock evaluation is of prime importance in making periodical assessments of production costs and in measuring business income. It also influences managerial decisions regarding such matters as price fixing and insurance. The problem of stock evaluation arises in accounting only because of the need, in ascertaining trading results, to allocate business income between arbitrary short periods of time, such as a year, quarter or month. The object of stock evaluation in manufacturing industry is to neutralize uncompleted transactions in order that net operating income will consist of profits and losses on completed transactions, *e.g.*, purchases matched by sales.

The relatively high proportion of stocks and work-in-progress which exists in many companies, sometimes due to trade necessities, but often to managerial inefficiencies, makes the work of stock valuation most important. For when the ratio of total stock to sales is high—a useful comparison to reveal the existence of slow-moving stock—and the margin of true profit is relatively low, a relatively slight error in stock valuation may give rise to a considerable percentage error in disclosed profit, as exemplified by the following figures :

Sales	=	100
True profit	=	5% of sales
True stock	=	80% of sales
Stock error	=	+ 2½%
Stock valuation	=	82% of sales
The profit shown is 5% of sales + 2½% of stocks	=	7% of sales,
or $\frac{7}{5} \times 100\%$ of true profit	=	140% of true profit.

Hence we have a stock error of + 2½% and a profit error of + 40%.

Practice in stock evaluation varies not only in regard to the principles adopted, but also to the application of adopted procedures, even where it is practicable to price each article or batch at its individual cost. Stock evaluation may be considered from the viewpoint of ascertaining the value of stock used in the business during the year or in finding what the stock is worth to the business at the accounting date. Whilst the former approach accepts the purpose of stock evaluation as the assessment of periodical profits, the latter approach assumes that people are more interested in the current values of trading assets at the accounting date rather than with their past costs.

Stock-in-trade as an industrial asset is permanent to the extent that

a minimum stock is normally necessary for the continuance of manufacture and sale ; it is realizable in that stocks are absorbed into finished products which are ultimately sold and it is replaceable on the "going concern" basis that stock used in production is replaced.

The idea of stock as a permanent asset has led in some cases to stock valuations being made on the "base stock" method, whereby a basic stock is retained in the accounts at original cost. Any excess stock will usually be valued at historical cost or on an average basis. This method assumes that material requirements will remain fairly constant quantitatively and that prices will remain stable. Hence, if prices rise, the extra cost charged to production will be set-off against revenue from sales. The understatement of stock values is accumulative as prices continue to rise and equates with the amount by which "profits" are reduced. The method presupposes the existence of a base stock which is never used and is thus treated as a fixed asset rather than a current asset. When stocks are being continually turned over, the base-stock method does not necessarily result in a true record of events.

The evaluation of stocks-in-hand on an average basis is a method which is applicable to a wide range of industries when the value of money is relatively stable and under these conditions relates selling prices and replacement costs with a varying time-lag. When prices fluctuate abnormally and costs are averaged, the result is that stocks and materials used in production are partly evaluated at replacement cost levels. This compromise, like many others, does not always provide a complete answer to the problem, particularly during a severe inflationary period. This method does, however, correctly assume that the cost of goods charged to manufacture is not normally dependent on the physical accident of their place in the stock-pile.

In other cases, the concept of a basic stock and the aspect of stock-in-trade as a replaceable asset have led to what is known as the "Lifo" (last in—first out) method of valuation. "Lifo" assumes a basic stock valued at the opening stock prices initially adopted, but differs from the base-stock method in two ways. The exact physical stock as opposed to a notionally fixed basic stock is valued and the prices used are those of the earliest purchase still in hand and not the once-for-all prices of the first basic stock. The general principle of "Lifo" is to regard stocks-in-hand at the end of a year as consisting, first, of those included in opening stocks and, second, those purchased during the year. Thus "Lifo" deems the latest acquired goods to be used first, although physically this may not be the case, so that stocks consumed tend to be priced at their replacement cost and stocks-in-hand tend to be evaluated on a delayed-cost basis. Whatever may be the general level of prices prevalent when the "Lifo" system is introduced, resulting stock valuations will continue accordingly on this basis so long as physical stocks remain at the same volume or are reduced. Accordingly, in conditions of rising prices, the "Lifo" method restricts gross profits to approximately the difference between the selling price of the goods and their replacement cost.

The usual assumption in applying the "Lifo" method is that the

physical volume of stocks will be maintained. If, however, the quantity of materials acquired exceeds that used in sales for the year, the quantity absorbed in manufacture is charged on the "Lifo" basis to cost of sales and the balance of quantity and cost is included in the closing stock for the year. In cases where the strict application of the "Lifo" principle is impracticable, the allocation of cost in respect of material acquired during the year may be made on an average basis. On the other hand, if the quantity of material acquired is less than the sales content for the year, the shortage is regarded as having been withdrawn from the opening inventory on a "Lifo" basis, or where the strict application of this principle is impracticable, on an average basis. Therefore, if stocks fall in volume during a period of price inflation, an extra profit is shown reflecting the difference between the "Lifo" cost and the selling price of the goods sold from stock. If the "Lifo" system is adopted during an inflationary period and the value of money subsequently increases so that prices are reduced and the position arises that stock-in-hand could be replaced at a cost less than its "Lifo" valuation, an additional charge against profits or an appropriation of past profits from reserve would be needed to cover the excess of "Lifo" cost over current values, as the commercial value of the stock-in-hand would be correspondingly reduced. Generally the application of the "Lifo" system minimizes extremes of profit caused by inflationary conditions, although it may thereby create a false impression of stability. Nevertheless, trading results do not necessarily remain undisturbed under the "Lifo" system even when the method is consistently applied, although it is sometimes claimed that the system may be used to correct still greater distortions due to changes in the value of money. The prospects of obtaining taxation benefits when profits are minimized by the application of "Lifo" is often behind proposals for its official recognition in the ascertainment of profits. Serious claim for its adoption can, however, be made only in industries where stocks are the major current asset and consist of basic or homogeneous goods which form a substantial part of sales; when stocks are slow in being turned over by reason of lengthy manufacturing processes or conditions of merchandising; when the price of raw materials and that of the finished product tend to run parallel and sales prices closely reflect replacement costs, or when the cost of raw materials is so important a factor in running the business that fluctuations in prices cannot be absorbed by normal trading operations.

The replacement convention also shows itself in the more common practice of valuing stocks by the "Fifo" (first in—first out) method, which assumes a flow of cost factors in the sense that the cost of the items of goods first in will be regarded as the cost of those first out, so that stock-in-hand represents current purchases and, therefore, results in their valuation in close relation to their replacement cost, whilst stocks consumed are priced at their historical cost. This procedure assumes that stocks are being turned over as rapidly as possible. If, as the result of the application of this method during an inflationary period, stocks tend to be valued at their replacement cost, the corresponding lower charges against production costs assist profits, but this

extra paper profit will fade away unless the amount of the increase in stock valuation is recovered in future selling prices.

It is not supposed to be the primary objective of inventory accounting to evaluate closing stocks, but rather to ascertain the costs properly chargeable against revenue from sales in accordance with the nature of the business and the price-fixing policies of the company. Nevertheless, no sensible business man would disregard the commercial worth to the business of raw materials, work-in-progress and finished stocks at the close of the accounting period on the basis of the company continuing as a going concern.

The procedure of evaluation is one which requires an intimate knowledge of the business concerned, because sound commercial judgment has to be exercised in order to assess worth in relation to future trading. The true worth to the business of stocks-in-hand at the close of any accounting period depends, physically, on the suitability of the stock to the production and marketing requirements of the business and, financially, on the earning power inherent in the stocks.

The valuation of worth may be made primarily on the basis of cost incurred, replacement cost, realizable cost expressed as an appropriate part of the market price of the potential products, or partly in one way and partly in another. As already explained, cost incurred may be determined relative to basic stocks, average cost, "Fifo", or "Lifo" calculations. If the accounting convention of historical costs were adopted, all stocks-in-trade would be initially valued on the basis of "Fifo" and so shown in the balance sheet, with subsequent deductions where requisite to reduce this evaluation to conform with the true worth of the stocks to the business. More attention of management might then be directed to the principles of efficient buying and stock control. Indeed, it would not be surprising to find that inefficiencies in these directions far more than outweigh the heavy financial and production losses which arise from industrial labour disputes.

Two principal deductions may be required from the evaluations made on the basis of "Fifo". First, each item or group of stock needs to be examined with a view to making provision in the accounts at historical costs for doubtful, deteriorated, discarded or obsolete stock to the extent indicated by the physical requirements of the business. Although stocks may be valued on an aggregate basis, it seems that the process cannot produce reliable results generally and avoid the danger of overlooking obsolete and impaired stocks. A second deduction may be required from the "Fifo" valuation, as reduced by provisions for impairment, in order to determine the commercial value of the stocks to the continuing business of the company.

In order to discuss the problem in more detail the symbols A, M and R will be used to indicate respectively historical (*i.e.*, actual) cost, realizable cost (*i.e.*, market value) and replacement cost. No difficulty arises for no adjustment is required where $A = M = R$ which is a condition hard to visualize in this post-war world. Indeed, a dozen other cost relationships are possible, which, for convenience are summarized below in symbol form (see Table 19). If the basis adopted in making the final evaluation accepts the principles of avoiding

any postponement of inevitable losses or any anticipation of unrealized profits, it would be that indicated by a rectangle in the symbolic diagram. It is just as unwise to postpone disclosure of an inevitable loss and so, for instance, saddle a future accounting period with bad or unfortunate purchases currently made, as it is to anticipate an apparent profit which arises merely on paper and is not represented by liquid assets.

TABLE 19
COST RELATIONSHIPS IN STOCK EVALUATION
(Equality of Costs Excluded)

Code :	A = Historical Cost	R = Replacement Cost	M = Realizable Cost			
Cost Relationship	(1)	(2)	(3)	(4)	(5)	(6)
Higher . . .	M	A	A = R	M = R	A = M	R
Lower . . .	A = R	M = R	M	A	R	A = M
	(7)	(8)	(9)	(10)	(11)	(12)
Highest . . .	A	M	A	M	R	R
Intermediate . . .	R	R	M	A	A	M
Lowest . . .	M	A	R	R	M	A

It will be observed that in all cases historical or realizable cost as required for fiscal purposes has been adopted, whichever is the lower. This may be expressed as cost or market value, whichever is the lower. In two of these cases (5 and 6) cost and market value coincide and in two other cases (1 and 2) replacement cost equates either with historical cost or realizable cost. Additional consideration is needed to the three cases (5, 9 and 10) where replacement cost is less than historical or realizable cost and in three cases (6, 11 and 12) where replacement cost is higher than historical and realizable cost.

In cases where replacement costs are less than historical and realizable costs, it may be desirable to establish a revenue reserve in the accounts if a general reduction in selling prices is expected. This is a prudent course to adopt if forward contracts still remain which were placed before prices declined and selling prices for future sales from the manufacture of these raw materials have not been fixed. On the other hand, no reserve is needed where existing stocks are covered by firm sales at profitable prices, unless customer relationships indicate that some concession is desirable or if the volume of forward contracts is high and the period involved is an extended one.

Where appropriate, the reserve would be established by transfer from general reserves or unappropriated profits of the amount considered necessary. The reserve would be depleted in the future as the need became manifest to assist earnings by transfers from it. The amount of any reserves created would require a corresponding adjustment in the amount of any reserve set aside for future taxation on current profits, because any loss on raw materials under contract would be allowed for taxation as and when incurred.

In the reverse condition where replacement costs are higher than historical and current realizable costs, there is a prospect that additional capital resources will be needed as working capital in order to finance increased stock values, although profits earned may not be affected if future selling prices are appropriately increased. Accordingly in such circumstances, the creation of a capital reserve is desirable as a specific appropriation from revenue reserves, so indicating that extra finance is required in the business to cover increased stock values.

Complication arises in the application of these principles to work-in-progress, as this usually consists of directly productive labour, raw materials and overhead expenses. Furthermore, the need to be cautious in the assessment of profit tends to bring about a similar attitude towards the inclusion of a proper proportion of overhead expenses in work-in-progress valuations. Practice in this respect is far from uniform, the only point generally agreed being that overhead expenses of distribution and sales are legitimately chargeable against current sales and excluded from stock valuations, on the basis that the accounting period in which sales are made should bear their distribution and selling costs.

In some cases the full rate of factory overhead expenses is included in work-in-progress valuations. Serious distortion of trading results may follow when the rate of overheads applied to stock valuation is determined by expressing total overhead expenses as a percentage of the prime cost of output obtained. For the incidence of fixed overhead costs results in stock values increasing as output reduces and *vice versa*, although their commercial value is probably moving in the opposite direction. Accordingly, the overhead cost content is sometimes limited to variable overhead expenses, as distinct from relatively fixed expenses necessarily incurred irrespective of fluctuations of output, thus eliminating administration expenses which are relatively fixed costs from the valuation. The argument in favour of this procedure is that fixed expenses are incurred on a time basis rather than in relation to the number of articles produced, sold or held in stock, and should therefore be written off against income accordingly. On this basis, the relatively fixed overhead expenses of a business are recovered in selling prices as sales are completed and a margin of safety is provided against a fall in production volume. On the other hand, it must be conceded that work-in-progress cannot be created without incurring fixed overhead expense, part of which is strictly appropriate to the work-in-progress at any time. Any variation of production from the normal will result in the over- or under-absorption of fixed overheads in that period. As this volume variance results from a particular

trading period, it may be considered as appropriate to set it off against earnings in that period, and to maintain opening and closing stocks valuations with their normal content of fixed overheads. Thus the overhead content of stocks and work-in-progress may be limited to an economic overhead burden, such as would arise with an efficient utilization of available capacity at a normal level. Thus, the distortion of trading results caused by fixed overheads being introduced into stock valuations at different rates each year may be reduced, or the creation of a secret reserve by the complete elimination of fixed overheads may be avoided.

CHAPTER 18

RESERVES AND DIVIDENDS

THERE is a fundamental difference between the capital account of an incorporated company and that of a private trader. When a private trader makes a profit, he may either withdraw an equal amount of cash, if available, or he may leave the profit in the business to provide extra working capital and so increase his capital account. If, on the other hand, a trading loss is incurred, his capital account will be necessarily reduced by the amount of the loss, unless he meets the deficiency by investing more money in the business. Thus, the capital account of a private trader currently reflects his financial interest.

The position is otherwise with a company incorporated under the Companies Acts, as these prohibit any reduction of capital without leave of the Court. Hence, if a company has a period of unsuccessful trading and loses part of its capital, its capital account is shown without change in the balance sheet, even though the company may be insolvent, with accumulated losses shown on the other side of the balance sheet as fictitious assets. On the other hand, if a company has been able to conserve its profits, the amount of its issued share capital is not thereby affected. The profits retained in the business appear as credit balances in the profit and loss account or as reserves which have been set aside from allocations of profit. When reserves are capitalized and used as the basis of a scrip issue, profits are accordingly retained in the business as a permanent part of paid-up capital. Profits retained clearly increase the net worth of the shareholders' equity as measured by aggregating the amount of contributed capital, reserves and retained profits.

Reserves

A company has a *prima facie* power to set aside a reserve before declaring a dividend, but this power may be negated by the regulations of the company. The objects of conserving resources by the creation of general reserves are not only to preserve financial strength and ensure stability on a long-term basis, but also to finance expansion or new development and to provide by dividend equalization reserves, funds for the payment of dividends in the event of future trade recession.

As a reserve is an amount in the nature of a surplus, the term includes not only appropriations of profit for general purposes, but also any amounts representing a realized or unrealized surplus of fixed assets. As a reserve is represented by a surplus of assets, it is only when these consist of cash or marketable securities that funds can be made available if the need arises for which the reserve was established. Liquid funds of this kind have to be paid for, in the sense that the interest return on invested funds is usually low as compared with using the reserves as working capital.

Revenue reserves comprise amounts available or free for distribution

to shareholders through the appropriation section of the profit and loss account. The unappropriated balance of profit obviously comes within this definition. Profits may be appropriated to general reserves, contingency reserves, stock obsolescence reserves, and so on. In many cases, the only virtue in making allocations to reserve, rather than carrying forward retained profit, is the psychological one of so indicating that withdrawal of the amount reserved is not considered desirable in the form of dividends. There is little point in setting aside dividend equalization reserves unless corresponding amounts are invested in realizable securities, because reserves which are not represented by liquid assets usually form part of working capital and are represented by stocks-in-hand and work-in-progress, so that cash is not available when the need arises to realize the reserve for dividend equalization payments. Amounts transferred to revenue reserves which subsequently prove unnecessary for the purpose visualized may be used for the payment of dividends or re-transferred to other specific reserves. The converse of a revenue reserve is, of course, an adverse balance in the appropriation section of the profit and loss account.

On the other hand, capital reserves are not regarded as available for the payment of dividends through the profit and loss account, either because they cannot legally be dealt with in this way or, because of their origin or the purpose for which held, they are treated as not being free for withdrawal as dividends to shareholders. The Act lays down that a share premium account and a capital redemption reserve fund are not available for distribution. Whereas excess profits tax post-war refunds can now be distributed, profits earned prior to the company's incorporation cannot be lawfully distributed. A dividend received from an investment, so far as the dividend has accrued before the investment was acquired, is also a capital reserve ; but in this case the cost of the investment may be regarded as its net cost after deduction of pre-acquisition dividends accrued. Unrealized gains arising from monetary inflation and reflected by a valuation of assets in excess of their historical cost are shown oppositely in the balance sheet as capital reserves. Other capital reserves may be arranged at the discretion of the directors, as, for example, realized capital profits from the sale of assets, leasehold redemption reserve funds, or a voluntary debenture reserve fund. The fact that these items are shown as capital reserves in the balance sheet by reason of their being regarded by the directors as not available for dividend does not irrevocably capitalize them, for the directors are free to change their minds if they see fit to do so.

Industrial companies are now prohibited from accumulating secret reserves. The Cohen Committee, in concluding that the danger of the possible absence of disclosure of secret reserves should be removed, emphasized the importance of ensuring that "there should be an adequate disclosure and publication of the results of companies, so as to create confidence in the financial management of industry and to dissipate any suggestion that hidden profits are being accumulated by industrial concerns to the detriment of consumers and those who work for industry".

Capital Redemption Reserve. A capital redemption reserve fund may be applied only in the creation of new capital, as it only replaces capital and safeguards are required for the protection of creditors. Where a company has power under its articles of association to issue redeemable preference shares, these, if fully paid, may be redeemed only out of profits otherwise available for dividend or out of the proceeds of a new issue specifically made. Where the shares are to be redeemed out of profits, appropriation of profit has to be made to a "capital redemption reserve fund" of a sum equal to the nominal amount of the shares to be redeemed. The profits so reserved cannot be used at any time to pay dividends, or for any revenue purposes, but the amount reserved may be wholly or partly used in paying up unissued shares of the company as a scrip issue to members of fully-paid shares. In this event, the capital redemption reserve fund ceases to appear in the balance sheet as it is merged in the issued share capital account. The provisions of the Act relating to reduction of capital apply to the capital redemption reserve fund as if it were share capital. Any premium payable on redemption must be provided from profits before the shares are redeemed. The redemption of shares is not regarded as reducing the amount of the company's authorized share capital and, up to the amount redeemed, a new issue of shares is not regarded as an increase of capital for stamp duty purposes. The profit and loss account has to show the amounts provided for redemption of share capital and every balance sheet has to state what part of the issued capital consists of redeemable preference shares and their earliest date for redemption.

Income Tax Reserves. Income tax being assessed on the basis of the profits of a previous financial year causes divergence in the practice of dealing with requirements for income tax in balance sheets. This divergence of practice may be illustrated by a simple example, in which the profits of a company are assumed to be as follows :

<i>Trading Year ended 31st December</i>	<i>Income Tax Assessment</i>	<i>Fiscal Year</i>	<i>Date Tax Due</i>
	£		
1951	72,000	1952-53	1st January, 1953
1952	84,000	1953-54	1st January, 1954
1953	120,000	1954-55	1st January, 1955

Amounts may be set aside in the 1953 accounts on any of the following bases :

- (1) By apportioning between the periods prior to and subsequent to the balance sheet date (31st December, 1953) the income tax assessment for the fiscal year (1953-54) in which the accounting period ends (31st December, 1953), and the previous fiscal year (1952-53), thus providing only for the period appropriate to the strict legal liability ; *e.g.*,

$\pounds(3/12 \text{ of } 72,000) + (9/12 \text{ of } 84,000) = \pounds 81,000$ as a current liability :
with no amount for future taxation.

- (2) By providing an amount to cover the whole assessment for the fiscal year (1953–54) in which the accounting period ends (31st December, 1953), *i.e.*

£84,000, either wholly regarded as a current liability, or regarded as to £63,000 as a current liability and £21,000 as a partial reserve against future taxation.

- (3) By providing the whole amount for the fiscal year (1953–54) as a current liability, and, in addition, after bringing into account any amount already reserved for this period, the amount estimated to be payable for future taxation in the subsequent fiscal year (1954–55) on the basis of the profits earned to the date of the balance sheet (31st December, 1953), *i.e.*,

£84,000 for current taxation ;
£120,000 for future taxation, whereof the amount appropriated from profits is limited to the excess over amounts previously reserved and available for future taxation.

Other variations in practice also occur. For instance, a company has a right to deduct income tax from dividends paid, and accordingly some balance sheets show the net amount of taxation due as if such deductions were contributions to the company's own tax liability. As the Inland Revenue charges income tax on profits earned and has no other interest in their disposal, whilst a company's right to deduct income tax at the standard rate from dividends paid is unrelated to its taxation liability, the preferable practice is to show the gross amount of the company's taxation liability in the balance sheet and the net amount of dividends paid to shareholders as an appropriation from the profit and loss account.

Although future taxation normally becomes payable at 1st January in the fiscal year commencing on 6th April next following the end of the accounting year on the basis of which the charge is assessed, the result is different if the company is wound up before the end of the fiscal year in which the amount becomes payable or the company sustains a trading loss for income tax purposes in the accounting year subsequent to the basic year on which the charge is assessed, for example, if the accounts for calendar year 1952 form the basis of charge for fiscal year 1953–54 and the tax due is payable on 1st January, 1954.

- (a) If the company is wound up before 5th April, 1954, the liability for 1953–54 (and possibly 1952–53) would need recalculating, for the actual liability is dependent on the profits earned in the final fiscal year to the date of cessation. In this case, any income tax reserve, after allowing for any necessary adjustments, would represent a true reserve.
- (b) If the company makes a loss for income tax purposes in the year 1953, tax can be reclaimed on the loss up to the amount of the whole tax suffered for 1953–54, so that, if no tax is payable on balance for that year, the tax reserve is a true reserve.

The legal position is that at any balance sheet date it is only essential to provide the accrued portion of the liabilities for the current fiscal year in which the company's accounting year ends and any excess amount provided is in the nature of a reserve, for reserves deal generally with liabilities which may arise in the future in certain eventualities. The liability will not arise in the case of income tax unless the company's future operations remain profitable and tax is ultimately assessed at the contemplated rate. The statement that the amount set aside to meet future income tax is a reserve conforms with the legal decision in a case in which it was held, in considering the meaning of the words "liability of the company" in connection with estate duty, that the ordinary and natural meaning of the words did not extend beyond legal liabilities actually existing in law at the relevant date, nor did they include something which, in the business sense, was morally certain to arise, but which in law did not become a liability until later. Therefore, they did not include income tax which would be payable in a subsequent year on profits earned now. The fact that the liability to income tax in respect of a future year's trading will be normally measured by the results of the accounting year concerned does not make that tax any less a liability to be incurred in the future. When profits are earned abroad and these are assessable to income tax only when remitted to the United Kingdom, these profits can affect the company's tax liability for an indefinite period ahead as remittances are made. Normally, too, it does not follow that the same standard rate of taxation will operate in the future or that the company will necessarily suffer tax at the standard rate on the amount of profit for other reasons. Thus, a reserve made for future taxation definitely becomes a liability only when it has become due and payable.

The fact that income tax is assessable in respect of the financial results, computed for taxation purposes, for the preceding trading year, means that unless a company reserves the amount of taxation assessable in respect of each trading period, a future difficulty may arise, for a large profit in one year followed by hardly any in the next would not avoid a legal liability in the later year on the basis of profit earned in the preceding one. In order to reserve against future taxation, the accounts of the first trading period affected necessarily carry tax charges for two years although each succeeding year will meet only its appropriate burden. It may not be possible to satisfy immediately the policy of providing for the full weight of future taxation on the basis of all profits earned to the date of the balance sheet, but the reserve may be gradually accumulated, in which event the annual contributions provided should be shown separately in the profit and loss account. On the other hand, there is nothing to stop a company from reverting to the "legal basis" in a poor trading year, provided this change is properly disclosed, although the need to do so would rightly be regarded as a sign of financial weakness.

Dividends

The corporate structure in the form of the joint stock company

provides an essential link between ownership and employment in satisfying the needs of consumers, whilst ensuring reasonable freedom for some of the best brains to function in the important task of directing and managing the multifarious activities of industry to the general advantage of all concerned.

The revenues of industry are mainly disbursed in paying salaries and wages which undoubtedly constitute a first charge on cash resources, in satisfying the claims of trade creditors, in meeting the demands of the Exchequer for taxation, in providing for reserves and the retention of funds for business expansion and, lastly, in rewarding shareholders who, in spite of their thrift and risk-taking, are, nevertheless, in the position of residuary legatees.

The need to protect the fulfilment of a national policy of full employment from the dangers of inflation has led governments to recommend dividend limitation by companies in order to encourage wages restraint by trades unions. This was undoubtedly the correct policy to apply when demand was chasing supply and the risks of investment were materially reduced because of the virtual certainty of industrial profits, as witnessed by the remarkably low level of insolvencies. It was also in the interests of companies to conserve their resources to meet the vicissitudes of normal trading conditions which would arise with the halt to inflation. However, the practice of dividend restraint has resulted in the accumulation of reserves in many cases out of proportion to dividend payments, so that share prices being related to maintainable dividends have in many cases fallen out of line with underlying asset values. Consequently, share bids have emerged in order to redress the price structure. It is only too well known that the policy of dividend restraint is fortified by a profits tax which effectively surcharges distributions of profits, whilst almost one-half of assessable profits is also taken by the Exchequer as income tax, in order, *inter alia*, to finance the Welfare State. The continuity of the Welfare State, desirable as it is, depends largely upon the maintenance of a policy of full employment which incidentally provides a spur to better management by granting a considerable measure of freedom to workpeople in choosing their employers. Full employment also benefits industrial profits by enabling companies to function at a level of activity well in excess of their break-even point. It is not unfair, therefore, that some part of this uncovenanted benefit should be siphoned off for the public weal, provided public expenditures are neither wasteful nor extravagant and the incentive for personal savings and investment is not blunted by excessive taxation.

The prudent proportion of earnings to distribute by way of dividends varies not only from industry to industry, but even from company to company. Directors of companies clearly stand in the position of trustees in regard to the interests of employees, shareholders, consumers, and, in a more general way, the public. Their duty in policy-making is to consider the overall position so as to preserve a reasonable balance, as far as rests within their power, between the demands of apparently conflicting interests, particularly in reconciling the claims of employment and ownership. Upon directorates rests the duty of maintaining,

strengthening and developing corporate resources whilst ensuring the payment of dividends which are adequate to encourage saving and a sufficient input of risk-taking capital into industry. However, the increasing hazards of future trading as the result of the halt to inflation and the uncertain outlook in the international sphere justify a higher reward for risk-taking than during inflation, in order to ensure the necessary flow of personal savings and investment for new and developing enterprises, upon the success of which a practical policy of full employment in a free economy ultimately depends. In practice the proper use of capital can in principle be secured only by the test of the market, applicable only if an appreciable proportion of profits are distributed into the hands of shareholders to take the chance either of their re-investment in the same company through the purchase of additional shares, or of their investment or expenditure otherwise. Is it the duty of directors to presume that the retention of profits is *ipso facto* justified by the rate of interest which may be earned on the expansion of business thus financed?

The making of dividend policy is usually an important function of directorates. There is no mention in the Companies Act, 1948, about the manner in which profits available for dividend are to be reckoned; but the power to pay dividends is regarded as inherent in every trading company, because profit is an important incentive to successful trading and dividends are the price paid for the social use of private funds. Articles usually contain regulations for the payment of dividends out of profits and provide for the declaration of interim dividends at any time between one annual general meeting and another. Companies make provision for the declaration of dividends accordingly, either by the company in general meeting or, more usually, by the directors with the sanction of a general meeting. In some cases, power to declare dividends rests on the authority of the directors alone. Indeed, if the power to declare dividends is vested in the directors alone, no principle can be invoked to compel a going concern to divide the whole of its profits amongst its members and shareholders cannot insist upon a dividend, except in case of fraud, even where profits are adequate to pay one. Moreover, where the Articles provide that dividends may be declared by the company in general meeting, subject, however to a limit recommended by the board, the members in general meeting may approve or reduce the dividend recommended by the board, but cannot increase it or resolve to pay a dividend when none has been recommended, whether the dividend relates to ordinary shares or is a fixed dividend on preference shares.

Dividends are, in any event, payable only out of profits. Profits represent the credit balance on revenue account arising from the ordinary business of the company or accretions to capital. Sometimes shareholders are fortunate to receive a dividend by way of a capital profit, which, provided no restriction is imposed by its constitution, the company is entitled to distribute as a tax-free dividend. Although such a distribution does not attract income tax or surtax in the hands of the recipient, since the amount received does not represent income in their hands, the distribution can attract profits tax, as being a distribution

to shareholders within the meaning of the profits tax provisions. The amount must therefore be included in ascertaining the gross relevant distribution to proprietors and, consequently, the amount of profits tax payable. The payment may also attract a distribution charge if it exceeds the chargeable profits of the accounting period, but the charge will be restricted in accordance with the amount of non-distribution relief received in previous years by the company. In respect of capital profits, however, the accounts must be regarded as a whole before a capital dividend is declared, because it is only the excess of the value of the net assets over the issued capital which may be distributed so that the subscribed capital may remain intact.

A payment of dividend from capital which would amount to a reduction of the company's subscribed capital is not allowed, because it would impair the protection of creditors who have traded with the company with a presumed knowledge of its capital strength. Any payment of dividends out of contributed capital or borrowed money is beyond the powers of a company and on the face of it renders the directors jointly and severally liable for breach of trust and to reimburse to the company any amount so paid. This is so even though the Memorandum, Articles, or a special or ordinary resolution of the company seeks to authorize the transaction, because none of these documents or resolutions can supersede the law. The directors may, however, recover from each shareholder any dividend paid to him out of contributed capital.

However, the company may pay interest on capital in respect of shares issued to raise money to be expended on the construction of works, though no profits are earned, provided the payment is authorized by the Articles or by special resolution and sanctioned by the Board of Trade and limited to 4 per cent or such other rate as prescribed by Treasury Order. It used to be the case that premiums on the issue of shares could be treated as distributable profits, but nowadays, where a company issues shares at a premium, the amount of the premium must be transferred to a "share premium account" and the provisions of the Companies Act as to reductions of capital apply as if the amount consisted of paid-up share capital, although the account may be used to make scrip issues as well as to cover preliminary expenses and underwriting commission.

Legal authorities all agree that any diminution in the value of circulating capital ("cash and assets held for conversion into cash") must be taken into account in ascertaining profits available for dividend. Moreover, it is normally only prudent commercial practice to ensure that adequate provision has been made for losses and depreciation of fixed assets, although authority exists for stating that, subject to the Articles of Association, losses and depreciation of fixed capital may be ignored in ascertaining the amount available for dividend, as, for instance, where a company which owns a wasting asset, such as mineral resources, pays dividends without providing for depreciation, so that the dividend paid contains an element of capital repayment.

In the event of a physical loss of fixed assets which so reduces earning-power that profitable trading becomes impaired, the proper

procedure would be to proceed under a power contained or taken in the Articles to seek the sanction of the Court to cancel capital which has been lost or is not represented by available assets, as "nothing could be more beneficial to the company than to admit the loss and to write it off". A fall in the market value of fixed assets is however irrelevant in determining divisible profits available for payment as dividends. Moreover, amounts written-off past profits as depreciation of fixed capital, may be applied as profit, if, by reason of the real value of the fixed assets, no depreciation has in fact to this extent arisen.

Unless the Articles otherwise regulate, dividends are paid on each share in proportion to the nominal amount or par value of that share, without regard to the amount paid up on it, for members are assumed to participate in the profits of the company in proportion to their respective interests as measured by the amount of their nominal shareholdings. Sometimes the Articles provide that dividends shall be paid to shareholders in proportion to the amounts paid up, or credited as paid, on individual shares, thus giving a rateable dividend on the paid-up capital. This arrangement, however, gives no credit for the benefit which the holders of partly-paid shares confer on the company by enabling it to trade on the extra security provided by the uncalled capital represented by their names. Accordingly, provision may be made to apply profits primarily to paying a dividend of a fixed rate on the paid-up capital, together with a further rate in proportion to the nominal value of shareholdings. However, the Regulations of the London Stock Exchange require that any amount paid in advance of calls on any share shall carry interest, but shall not entitle the holder of the share to participate in respect of the advance in a dividend declared subsequently.

The declaration of a dividend creates a debt due from the company to each shareholder for his proportion, for which he may sue; but the right to do so cannot arise until the dividend is declared. The person entitled to the dividend is the individual whose name is on the share register of the company at the time of dividend declaration. In this connection, a transfer of shares which occurs after the declaration of a dividend does not, as against the company, carry the dividend, even where the transfer is cum-div, but between the seller and purchaser the transferee is, unless otherwise agreed, entitled to all dividends declared after the date of the contract for sale. Dividends are usually payable in cash and not, for example, by the distribution of shares or debentures in another company, unless the Articles permit the payment of dividends in specie. It is important, in the interests of fair dealing, that the rights of all the different classes of shareholders should be observed in declaring a dividend, so much so that any infringement of these rights may justify those affected in applying to the Courts for relief by injunction or otherwise.

The regulations of the London Stock Exchange concerning the requirements for a quotation in the official list require the company applying for a quotation to undertake to inform the Share and Loan Department of the date of the board meeting at which the declaration of a dividend will be considered and to notify the Department immedi-

ately the board meeting has been held ; of all dividends and cash bonuses recommended or declared or the decision to pass any dividend or interest payment ; of short particulars of any issue of new capital, whether to be issued by way of rights or as a scrip-issue to shareholders or debenture holders ; of the net profit figures for the current and previous year ; and of any other information requisite to enable the shareholders to assess the position of the company and to avoid a false market in the shares.

All appropriations of dividends must be disclosed in the published profit and loss account, even those which the directors are recommending to the members at the annual general meeting. Although statutory requirements relate to only the aggregate or total of all dividends, the usual practice is to show the dividends on each class of share separately, and in so doing, it is desirable to distinguish between dividends paid and dividends proposed and to state, also, whether they are paid before or after deduction of tax. The general practice is to show all dividends as payable net, whereas dividends received are often shown “gross”, although the disclosure of gross dividends and tax deducted is more realistic and makes the accounts more informative.

CHAPTER 19

PRICING POLICY AND STRUCTURE

THE price structure of a company results from its pricing policy and decisions and whoever fixes prices usually undertakes a crucial function in financial management. It is not surprising that in the larger firms, important pricing decisions are usually formulated by groups and frequently represent a compromise of varying view-points and conflicting interests. Pricing decisions may be distributed among various levels of responsibility, within a progressively narrowing area of discretionary authority.

The potential market for a product is the aggregate demand of all those who would be able and willing to buy the product if it were offered to them, whilst the actual market comprises the share of the potential market enjoyed by its suppliers. The typical market may consist entirely of other manufacturers and may be limited on the one hand to particular users of specialized capital goods, or may cater on the other hand to meet a general demand for common raw material or other consumable products. In other cases, the typical market may cater entirely for the supply of domestic goods of either a durable or a consumable nature and the industrialist may deal with this market either through a smaller intermediate market of wholesalers with or without a widening market of retailers. The manufacturer may even set up his own retail shops, in order to secure the advantage over his competitors of operating at an unusually high and steady level of output necessary to achieve low-cost production.

Although satisfaction with the product encourages an unwillingness on the part of the user to look elsewhere and less rational preferences arise from continued business relations, even consumers' preferences cannot prevail against a significantly lower price which carries with it equivalent quality and service. Irrational preferences exist even when the market consists of other manufacturers, as the result of a natural conservatism which tends to keep dealings within accustomed channels of supply ; but inefficient buying can continue indefinitely only on the basis of small differences in price. Sometimes it may be that irrational preferences can be secured by heavy expenditure on suggestive as distinct from purely informative advertising. Apart from the special case of branded goods, irrational preferences will not usually be promoted and sustained on an economic basis by advertising. Accordingly, established companies usually confine themselves to a relatively constant volume of informative advertising for their normal range of products, although the case may well be otherwise in promoting the sale of additional lines.

Cost Pricing

Although it may sometimes arise that pricing policy extends only to the acceptance of prevailing prices, business survival is in the long run conditioned by the fact that prices must at least equate with costs over a reasonable period. An accepted basis of pricing, therefore, is on prime cost with overheads added on the assumption of a normal level of output, coupled with an addition for contingencies and a satisfactory margin of profit. As it is probably more usual in estimating to omit the cost of manufacturing operations than to include unnecessary ones, provision for contingencies is invariably desirable. In cost-pricing it is important to note that economic costs are more relevant than accounting costs and future costs are more germane than historical cost. Reliable price-fixing on this basis depends entirely on accurate cost records, preferably incorporating standard costs which have the incidental advantage that the cost of new products can be estimated in relation to comparable products by making allowances for variations in complexity.

The anticipated profit margin may be covered by the addition of a flat percentage or a fixed amount. Sometimes a handling charge is added to material cost with a profit margin based only on conversion costs. Alternatively costs may be increased by a percentage addition which varies inversely with the ratio of material cost to total cost. Cost-variation clauses may be incorporated into long-term contracts to cover increases of input-factor costs to the contractor.

Although cost-plus pricing is desirable in so far as it prevents losses arising through orders being accepted on an unsatisfactory basis, it does not guarantee the avoidance of losses and, still less, survival from failure to obtain orders. Cost-plus pricing is unsatisfactory when it fails to reflect competitive prices. For the price which the market is prepared to pay for a product does not necessarily coincide with the costs to any particular manufacturer of making and selling it. Sometimes the law of supply and demand appears to operate in reverse for temporary periods, as when buyers anticipate continually rising prices and stock-pile as prices increase, or when buyers expect prices to fall and use up their stocks rather than continue purchasing.

Conventional Pricing

Sometimes a conventional or traditional price is adopted which has shown acceptance with the market instead of charging a price based on the full normal cost of the product, and the quality of the product is adjusted until a satisfactory maintainable relationship is fixed between costs and prices, thus inverting the usual cost-price relationship by tailoring costs to fit an accepted selling price. A similar inversion of costs occurs in developing substitutes to capture the market for existing products, by selling at a predetermined displacement price, in which event manufacturing and marketing effort is devoted to the attainment of costs which through volume sales are satisfactorily related to the price. Realities are thus observed by an appreciation of market demands, whilst costs are considered adjustable rather than variable.

Multiple Product Pricing

The cost of individual products cannot be assessed with precision in the case of the multiple-product firm, because equally acceptable bases for apportioning overhead costs may be used to yield results which are significantly different from one another and different bases may be used by various competitors. It may not be practicable in competitive trading to take the cost of several diversified products and automatically erect a set of prices on these strictly in relation to costs, because adjustments may be needed to fit costs to a price-structure appropriate to market requirements.

Common costs are necessarily allocated to products rather arbitrarily when the price structure is based on costs. In some cases, it may be convenient to base allocations in relation to the estimated relative elasticities of demand for the products, as a result of which those having an inelastic demand support a relatively high overhead burden of common costs. The usual relationship of cost and price is varied to the extent that price tends to determine allocated cost. In most cases, however, overhead costs are allocated on the basis of a particular factor, such as machine hours, area, or direct labour cost or time. Whatever the basis used in making pricing decisions, the marginal cost of a separate product does not usually set the minimum price, but rather this figure plus a proportion of common costs. In general, the precise relationship of output and cost is possible only in a unit-product plant.

The successful manufacturer recognizes the profit value of concentrated selling and realizes that the product line need not contain each size, shape, colour and style. He recognizes that concentration is a sales help and not a hindrance, because volume sales implies concentrated production which spells cost reduction and more competitive prices. Difficult problems may arise where certain varieties are considered necessary in order to help in the selling of other units. For example, the cost of, say, a smaller unit may be actually higher than that of a larger one, but to the market it may seem as if the smaller unit should sell at a lower price than the larger one. If the price of the smaller unit is reduced and the larger one is increased so that the line as a whole will give a reasonable profit if the present ratio between their relative sales volumes is maintained, the difficulty may arise that sales demand for the product which attracts the least profit will expand.

Price Lists

Price uniformity is generally desirable, except when manufacturers sell to distributors who require exceptional discount, or regard current price lists merely as a basis of bargaining. Exceptional credit risks may make it desirable to state a higher price so as to offer a substantial discount for payment within a short period and sometimes considerable business can be done on this basis which would not otherwise materialize.

A manufacturer feeling his way in establishing selling prices to various distributors or users may decide to issue a price list which is subject to discounts to be agreed according to class of customer, volume of demand and credit considerations. Quantity discounts may not only

reflect savings in distribution costs by reason of larger consignments ; but may enable the manufacturer to meet the demands of the influential distributor without upsetting other buyers. No advantage usually arises by granting automatic discounts to large distributors irrespective of the volume of business done, although this often occurs in practice. Likewise it is not a good policy to grant excessive discounts to distributors who have unnecessarily extravagant sales organizations, as the reflection of this in the consumer price cannot be in the real interest of the manufacturer. The use of price lists also facilitates price changes without the need to reprint catalogues.

Cash discounts are only economical when necessarily made to secure payment of accounts within a more reasonable period than would otherwise prevail. Requests for larger cash discounts tend to arise when extended credit terms are granted which may appear difficult to avoid without loss of goodwill. The buyer is, however, under a legal obligation to seek out and pay his suppliers and he should need no extra consideration for performing this duty with reasonable despatch. A preferable policy is usually to maintain all prices at the lowest figure and to insist on payment in accordance with the agreed or implied terms of trade.

Pricing New Products

The manufacturer when marketing a new product may have no precise knowledge of the real market price and his price lists may well be superseded in course of time by prices which reflect true market value. The seller in a market which is not competitive necessarily makes certain assumptions regarding demand elasticity and his main pre-occupation is to create conditions in which distributors will stock and continue to stock and sell his products. A tendency may arise to fix prices which are hardly profitable in the hope that it may be possible to increase them as the product becomes known in order to make a satisfactory profit. It may appear, at first glance, in fixing prices for new products that all one needs do is to assess prices on the basis of costs plus a profit margin, but as the cost per unit of output is unknown owing to the incidence of fixed costs, then unless the volume of future output is known this procedure is practicable only if the volume of output is assumed. Thus the need arises for market research prior to placing new products on the market.

Effective market research and subsequent advertising enable the manufacturer to create a reasonably stable distribution system. The cost of making initial sales is necessarily high in relation to the cost of effecting repeat sales from continued business relations, for the manufacturer will usually experience difficulty in getting the new product tried, unless it possesses obvious merit in comparison with existing products, or unless competitive products are in short supply. New entry is, however, relatively easier in industries which have strong seasonal fluctuations. On the other hand, it is often the case that the question of price tends to recede somewhat where good business relations are established, but the mistake should never be made of assuming that established customers will continue to accept prices which are not in line

with current market levels, particularly in periods of declining trade. Sometimes, when entry is made into another branch of an existing market which seems to offer a higher profit when new products are priced on a marginal-cost basis, the profit visualized may not materialize ultimately if fixed costs are incurred as sales develop. Moreover, development of the existing market may be retarded through confusing objectives and, if this results in the manufacturer losing competitive vitality, he may be unable to withstand any intensified competition which may arise from specialist producers against his main product.

Usually the typical manufacturer tends to charge what he really believes to be a maintainable price for his products, based on a normal level of output and a reasonable margin of prospective profit, because he knows only too well that little time will elapse, if he charges an unfair price, before sales resistance will emerge and force him to be realistic. Having established his price-level, he will then apply his resources to the task of securing a share of the market up to the limit of his capacity. If the manufacturer is concerned with consumable goods, he may have to accept a recognized conventional price, from which adequate distribution margins must be deducted in order to ensure that retailers will stock and continue to handle his products. If the factory price thus ascertained does not coincide with the price indicated on the basis of a normal level of output and a reasonable margin of profit, he will have to consider either cutting his costs, for example, by the contractual buying of supplies or the adoption of improved manufacturing methods, or modifying the product specification in order to adjust the price to suit the market. He will naturally hesitate before reducing the product specification, particularly if this is likely to jeopardize functional efficiency or sales appeal or reduce quality.

Price Behaviour

The manufacturer having established a satisfactory price for his products on the basis of normal output, tends to maintain prices unchanged, but he may adjust them for competitive reasons or if significant alterations in input costs arise which require their general revision. This policy is usually maintained, in spite of the fact that unit costs are reduced as output increases and unit costs are increased when output declines according to the relative incidence of fixed and variable costs. The premised break in the elasticity of demand at existing prices implies that an appreciable increase in them will seriously decrease sales and conversely that a reduction of prices will have little influence on the aggregate sales of the industry with the result that unwelcome competition will be encouraged. Different results will usually be assumed when disguised price changes are made as, for example, by granting extended terms of trade or special discounts.

The lowest-cost producer usually takes the lead in price determination under competitive conditions. Competitors will generally find themselves forced to follow a decrease in price by the leader provided differences in product quality are only slight. On the other hand, the

same competitors will not necessarily follow an increase in the price by the price leader, if the existing price continues to show an acceptable profit, because normal acceptance of the principle of an equitable price recognizes that unfair prices are eventually self-destructive. Accordingly the price-leader may be prevented from increasing prices because of the inactivity of weaker members of the industry. The possible reflection of price changes upon future competitive activity cannot be ignored, for the unpredictable reactions of competitors, who may even defend themselves through intensified competition against other established products, are a real uncertainty in price-fixing. Effects of price changes on the volume of sales are in general greater in the long run than in the short run, for the immediate response to price changes may be much different from ultimate reactions which may arise when buyers have had time in which to adjust their buying habits, or to make their own manufacturing arrangements.

Even when there is a general increase in demand for the products of a particular industry, manufacturers need not usually increase their prices in order to secure higher profits, for where productive capacity is available extra profit may readily be secured at existing prices. In particular, if the manufacturer knows that his competitors have greater reserves of plant capacity, he will not want to encourage them to encroach on his share of the market by what would then be more competitive prices. He will also want to avoid encouraging new ventures to enter the increased market.

On the other hand, in periods of trade recession, the manufacturer will be unable to increase his usual prices in order to maintain a normal level of profits, because the price increase may reduce demand still further and he will be unwilling to reduce his prices to attract a greater share of the available market when input-costs per unit fall, for his competitors will follow his lead and cut their prices to protect their share of the market. Reduced demand in general trade recession usually involves orders being received less frequently or in smaller quantities, whilst extra sales effort may be required as well and increase overheads per pound of sales. The consequences of increasing overhead costs under such conditions are far more serious than under normal conditions in which an extra volume of output may bring extra profits. In extreme cases of severe trade recession, the problem may arise of quoting for extra business at prices which fail to recover an appropriate part of fixed overheads in order to maintain intact the organization.

Joint Price-Fixing

It is not infrequently the case that prices are fixed by trade associations in order that a share of the market may be assured to each member on a profitable basis. The attainment of this objective suggests that prices will tend to be unduly influenced by relatively high-cost producers, whilst low-cost producers will tend to make "unearned" profits. On the other hand, restraint of competitive price-cutting assists in the maintenance of quality and of satisfactory

conditions of employment within the industry. Uniformity of costing information is necessary when pricing is done on a cost-plus basis if comparable results are to be made available for pricing purposes within the same industry.

It is not proposed to discuss price-fixing under monopolistic conditions, except to mention that the Monopolies and Restrictive Practices Commission has been established on a permanent basis to investigate and report on matters referred to it by the Board of Trade which tend to a monopoly and threaten the public interest by price-fixing agreements, black-listing, restricting supplies and the like, where one-third or more of the activity concerned is controlled by one person or combine. The Act which authorized the work of the Commission listed four considerations to be taken into consideration in interpreting the public interest, viz. : the need to achieve, consistently with the general economic position of the country,

- (a) the production, treatment and distribution by the most efficient and economical means of goods of such types and qualities, in such volume and at such prices as will best meet the requirements of the home and overseas markets ;
- (b) the organization of industry and trade in such a way that their efficiency is progressively increased and new enterprise is encouraged ;
- (c) the fullest use and best distribution of men, materials and industrial capacity in the United Kingdom ; and
- (d) the development of technical improvements and the expansion of existing markets and the opening up of new markets.

Where monopolistic or restrictive practices are shown to exist contrary to the public interest, appropriate Government Departments may make statutory orders requiring the position to be corrected. The result of the limited number of investigations so far made suggests that the public interest is not considered as violated when manufacturers associate for the purpose of fixing minimum quality standards, pooling patents, exchanging technical information and co-operating in research. The position appears to be otherwise regarded where the association is inimical to the maintenance of freedom of contract, as when designed, on the one hand, to promote collective resale price maintenance and exclusive dealing, whether by financial inducements such as aggregated rebates, or the imposition of penalties to curtail supplies, and, on the other hand, to divide business by the allocation of orders, the imposition of quotas, or by means of arranging differential tenders. Indeed, the Board of Trade has since asked the Monopolies Commission to inquire into the trade practices of " exclusive dealing " and " collective boycott ". The specified practices which are the subject of the enquiry are agreements between two or more persons carrying on business as suppliers of goods (a) to withhold from any persons supplies of goods or orders for supplies ; (b) not to provide such supplies or give orders to such persons except on terms less favourable than those applicable to others; and (c) to offer to any person rebates,

to be calculated at rates dependent on the total value of goods supplied to that person by all the parties to the agreements.

Resale Price Maintenance

Resale price maintenance is a trade practice whereby distributors sell goods at prices and under conditions fixed by manufacturers who ensure their enforcement by individual or collective action through trade associations.

In the knowledge that his products will be sold in competition with other makers, and in order to promote that steady demand and level of output which is necessary for an even-flow of low-cost production, the manufacturer necessarily adopts standards of quality and price levels which he considers will leave distributors and consumers in no doubt as to their fairness and thus assures their market acceptance. A fixed retail price contains the manufacturing costs appropriate to a certain volume of output and a margin of profit obtainable if this is secured ; but a disproportionate profit is obtained if the volume is substantially exceeded because of the wider spread of fixed overhead costs thus made possible. In addition to the manufacturing price, the fixed retail price includes appropriate margins for distributors, reckoned not as a flat sum, but as discounts representing percentages of the fixed consumer price. The incidence of purchase tax as an *ad valorem* duty on the wholesale price is not always without relevance in fixing retail margins, as retailers often look for a certain percentage on their aggregate turnover. Although distributors tend to judge the adequacy of price margins not so much by the actual cash return which they give as by making comparisons with conventional margins which prevail in the particular class of trade concerned, margins on price-maintained goods are usually lower than on free-price goods. This is justified by the fact that it is more expensive for retailers to handle a multiplicity of slow-selling products than it is for them to stock a few brands having large turnovers. The manufacturer in order to maximize the turnover of his goods at a steady rate endeavours to ensure that possible sales are not lost through consumer prices being increased by retailers beyond the limit set by the fixed retail price.

Effective price maintenance eliminates price competition amongst distributors of price-maintained goods and leaves traders free to compete by improving their quality of service and general business methods through appropriate advertising, keener salesmanship and the provision of more attractive shopping facilities. Thus, in purchasing price-maintained goods, the public may choose between different standards of distribution at a uniform price and different makes and qualities of similar goods at dissimilar prices. Some people feel that full freedom of choice should be available in the standards of service offered, to enable those who are content to accept a lower standard of service to buy at the cheapest possible price. Others consider there is rather a need to ensure reasonable standards of retail distribution which permit legitimate traders to work on a competitive

basis with the assurance of at least a reasonable livelihood to them and not unattractive shopping facilities to the public. The manufacturer is also indirectly concerned, for where nationally advertised brands are sold at different prices in neighbouring shops, experience indicates that a reduction in total demand usually follows to the detriment of manufacturing volume, particularly in the case of goods sold "on impulse". Resale price maintenance also tends to protect wholesalers against demands for special discounts by large chain stores and to protect retailers against unfair competition from the undercutting of prices by wholesalers. Moreover, the practice of resale price maintenance prevents speculative dealings by middlemen in price-controlled goods. An argument against retail price maintenance is that fixed resale prices are a minimum as well as a maximum, so that price reductions are made only at the instance of the manufacturer, who is unlikely to reduce prices so long as the volume of output is satisfactorily maintained.

The practice of resale price maintenance applies mainly to branded goods. The assertion that resale price maintenance itself protects the public disregards the fact that branding alone, by identifying the goods, assures the standard of quality adopted by the manufacturer and, so long as his products continue to be offered in standard format and are properly advertised, consumers are unlikely to assume that quality has been diluted if fixed prices are not maintained. Moreover, the argument sometimes advanced in favour of retail price maintenance that the public prefers a fixed retail price ignores the obvious fact that people do not object to paying less for equal quality.

Another argument advanced in favour of retail price maintenance is that it avoids uncontrolled price cutting and the re-introduction of the "loss-leader". The "loss-leader" is a particular type of selective price reduction, whereby the retailer offers certain goods at a loss in order to encourage customers into his shop, so that he may expand the sale of other goods carrying a full margin of profit. The better known the brand and the higher its quality, the more likely is it to be selected as a "loss-leader," because in such a case the public can quickly recognize any price reduction. The contention is that with the introduction of a "loss-leader" in a shopping district other retailers cease to stock the line concerned and the practice spreads into other lines to the extent that retailers may refuse to stock branded goods, or decide to stock goods made only to their private brand. The use of the loss-leader is, however, usually absent in conditions of full employment, but is more probable as a stimulant in conditions of receding trade.

The Lloyd Jacob Committee recommended in 1949 that the imposition of collective sanctions for breach of resale price conditions should be made illegal, but individual producers should be empowered to provide and enforce resale prices of goods bearing their brand provided the practice is not used to obstruct the development of particular methods of trading, or to impede distribution by competitive manufacturers or to deprive the public of improved methods of distribution.

When resale price maintenance is practised on an individual and

competitive basis by manufacturers, it cannot be considered as susceptible to the evils of monopoly.

Credit Control

Credit control determines and maintains the permitted credit facilities which are granted to buyers on the basis of their integrity and financial standing. Sales can usually be easily expanded by the indiscriminate opening of credit accounts, but the danger of granting credit if there is a real risk of the account becoming a bad debt lies in the fact that the consequent loss from bad debts may easily absorb the profits earned from several other accounts.

Credit is obviously related to financial policy and it is also an important feature of sales policy, in as much as the credit facilities which can be offered by manufacturers are limiting factors in effecting sales. Where credit is customary in a particular trade, the manufacturer finds himself restricted if he fails to offer the same facilities, even sometimes when he is able to offer a more favourable price than his competitors. Naturally, a selling organization is generally antagonistic to any administrative scheme which impedes selling effort.

The financial position of the seller determines the prudent total of credit which he can safely carry. Credit limits should be related to actual sales needs in order to use credit resources to the best advantage. When the supplier's financial position is adequate for all reasonable needs, maximum credit limits can be placed on each account at the outset. If the manufacturer of capital goods or other durable products has insufficient financial resources to permit him to offer extended credit terms, or if he wishes to avoid the credit risk as much as possible, he may secure adequate facilities for his customers by making an arrangement with a finance house, to which sales are made and which, in turn, disposes of the goods to his customers on an extended credit basis. In so far as instalment selling places products within the reach of users who otherwise are unable to acquire them owing to lack of capital, benefit accrues to the manufacturer through increasing his volume of activity. Particular care is necessary before extending manufacturing resources on the basis only of an instalment selling policy in order to ensure that the future level of demand will justify the increase in fixed costs consequent upon the extended capacity. Schemes of simple hire also operate whereby the user obtains delivery of a product for his use so long as he continues to pay the agreed hiring charges. Sometimes the manufacturer stipulates that the product is not to be used by industrial users in the manufacture of products similar to other products of his make. In other cases, the hiring charge is related, with a suitable minimum, to the extent of use by the hirer. Whilst simple-hiring undoubtedly promotes sales and ensures continuity of custom in appropriate cases, extra requirements for working capital are needed to make the scheme practicable on any appreciable scale.

Additional risks also arise in selling on a consignment basis, when the property in the goods remains with the manufacturer until they

are sold by the consignee, for the manufacturer faces the risk of having redundant stocks on his hands with corresponding financial loss. He loses complete control over the goods and is out of his money until payment has been made by the buyer. These arrangements are usual only where the relationship between exporter and importer is of long standing and no doubt exists on the part of the exporter as to the financial integrity of the importer.

The credit worthiness of a proposed customer is an essential condition precedent to satisfactory trading relationships. Even satisfactory bankers' references are no guarantee that customers will pay their accounts promptly and without the need for several reminders. Reports issued by trade protection societies vary also in their practical usefulness, although it is often the case that when these reports make mention of difficulties in collecting outstanding accounts from particular firms, such firms are usually a source of trouble to other suppliers who extend credit to them. Creditors usually settle their accounts within the stipulated period of credit, provided, however, that suppliers make a practice of rendering their invoices and statements promptly and, thereafter, leave no doubt in the minds of creditors that payment is expected at due date. Even the creditor who is short of ready cash will satisfy first those creditors whom he knows expect payment strictly to trade terms, with the result that businesslike suppliers can minimize the emergence of bad debts at their expense by having a strict system of credit control.

When credit terms are fixed, their strict enforcement can be secured by means of a follow-up routine. The usual practice is for a predetermined period to be specified immediately following the due date of payment, during which a series of standard "reminders" are sent to debtors, requesting payment of overdue balances in accordance with the statement of account. The number of "reminders" and their time interval varies according to financial requirements and general policy. Control problems arise as to accounts operated in series, when further deliveries may be made and special products manufactured during the interim period. Judicious regulation of supplies is often necessary as soon as payments become overdue and similar arrangements are desirable when an amount approaches its limit and there is a noticeable falling away in settlements. In addition, decisions are particularly required regarding work-in-progress and outstanding orders where the products are special to each customer's requirements. Co-ordinated action can be taken by agreement with production and sales departments when the debtor has had adequate reminders or fails to respond suitably when the need has arisen to adopt an insistent attitude with him.

Credit control is of vital importance for export sales, particularly for products supplied which are unsaleable in the home markets; for example, products conforming to Continental standards. Cash with order gives the greatest measure of security to the exporter. The only other certain method of obtaining payment for exports is by obtaining an irrevocable documentary credit, confirmed or guaranteed by a London bank acting as agent for the overseas bank which has estab-

lished the credit. The exporter is advised of the credit terms by the agent bank and, providing these are strictly complied with, the exporter receives payment. The terms of the credit may require the exporter to draw a bill of exchange, either at sight (sight draft) or for payment at some future date (a usance draft). In the former case, the exporter receives cash immediately. In the latter case, he can obtain immediate payment of the amount less discount by discounting the bill with his banker at the fixed rate applicable to first-class bills. In these cases he should cover the loss of discount when fixing the selling price of his products. Care is needed in complying with the precise instructions contained in a credit document, as any failure in this respect on the part of the exporter will jeopardize payment. For the bank, as representing the buyer, is under an obligation to ensure that his money is disbursed only in strict accordance with the terms of the credit. When technical discrepancies do arise, however, it is usually possible for the seller to secure payment by giving an indemnity to his bank, which in turn gives a bank indemnity to the corresponding bank. If there is sufficient time available, the seller may contact the buyer by air-mail or telegraph and ask him to instruct his bank without delay to amend the credit as requested in order to cover the discrepancies, or the buyer's bank may be asked to contact the correspondent bank for instructions to pay notwithstanding the discrepancies.

Another weakness in connection with these credits is that when an exporter draws a usance bill of exchange on the bank, he may be liable for the amount of the bill if it is subsequently dishonoured by the drawees and he receives notice of dishonour, either by its return or by specific notice, unless the drawer negatives this prospect by adding the words "without recourse" to his signature. Whilst this would hardly arise with a London bank, it could easily arise with a foreign bank, so that the credit should be confirmed accordingly. Alternatively, there should be a clause in the credit covering the drawer against any liability on the bill. The bill should also provide where necessary for payment at a specific rate of exchange and for adding interest or banker's charges, so as to define the obligations of the parties.

The alternative to an irrevocable and confirmed credit is an unconfirmed or revocable one. These are less expensive than irrevocable confirmed credits; but, of course, place the exporter in a precarious position. He should obtain a "notice clause" in the credit advice, whereby the bank undertakes to inform him promptly of cancellation of the credit should the need arise. In any event, revocable credits should only be accepted from customers of the highest repute and financial standing.

When a negotiable credit is arranged, the correspondent bank informs the exporter that it is authorized to buy a bill of exchange drawn by him on the overseas buyer, provided the bill is drawn as instructed with shipping documents attached. These are really authorities to negotiate and not credits within the strict meaning of the term. Although the correspondent is authorized to negotiate the bill, it does not necessarily follow that he will do so or pay the draft,

if, for example, the financial position of the buyer weakens in any way. In addition, the banker will have recourse against the drawer of the bill unless he accepts a *sans recourse* signature. Dishonour of the bill may involve an interest charge on the drawer, as well as repayment of the sum received by him, as these bills usually carry interest from their date of issue until the date of repayment of funds in London by the buyer's bank.

In the case of documentary bills, the seller draws a sight or usance bill of exchange on his customer, to which he attaches the relative shipping documents (endorsed bills of lading and insurance certificates, etc.) and hands these to his banker, who in turn offers them to the buyer, *via* his correspondent or branch abroad, in return for the cash or their acceptance, as the case requires. If the buyer refuses to pay or accept the bill, the property in the shipping documents does not pass to him and the seller will be asked by his banker for further instructions ; for example, for permission to store or warehouse the goods until the buyer is in funds. Thus the seller is out of his money until he receives payment from abroad. Whilst the method permits of flexibility in last-minute shipping arrangements, it is open to the hazard that the goods may have to be sold abroad or warehoused or returned at the expense of the seller. In order to minimize the waiting period, the buyer may agree to remit by telegraphic transfer, generally *via* his bank.

Negotiation and advances against bills and/or shipping documents may be arranged whereby the seller can obtain payment wholly or in part for goods exported, although his responsibility for reimbursement to the bank remains until payment has been made by the buyer. The procedure is for the exporter to hand the shipping documents to his bank after shipment of the goods and to execute a letter of hypothecation over the goods and their proceeds of sale, thus giving security to the bank. If the exporter is credit-worthy, he may either receive an advance of up to the total amount of the sale, or he may receive cash by negotiation of the bill by the bank. The disadvantage of the advance system is that like all bank advances it is repayable on demand in case of necessity, whilst the disadvantages of the negotiation procedure is that the exporter may be liable in the event of non-payment of the bill by the customer.

Revolving credits are usefully employed for recurrent transactions in order to avoid unnecessary routine work. The buyer gives standing instructions to his bank for a credit to the exporter within a stated maximum amount, thus making for an automatic method of settlement.

In order to assist the manufacturer, cash may be made available by buyers prior to delivery or even shipment of the goods by making payment against documents such as warehouse receipts (evidencing the existence of the goods), forwarding agents' receipt (acknowledging his custody of the goods), or shipping certificate (evidencing shipment of the goods) issued by the forwarding agent, or otherwise, as may be arranged. Credits may be confirmed, unconfirmed or revolving.

CHAPTER 20

INSURANCE

ALTHOUGH good management limits the trading risks of business, many other hazards remain which affect even the best regulated companies. The wisest course is to obtain the fullest available cover against the possible serious impact of non-trading hazards, for, although the payment of insurance premiums converts uncertain risks into fixed annual charges, their payment usually adds relatively little to overhead costs. Competition between insurers guarantees that excessive premium rates are not charged, but cut rates of premium need to be viewed with reserve, for in buying insurance one purchases a commodity the quality of which can be proved only in the event of a claim being made on the insurer.

The Duty of Good Faith

The contract of insurance relies upon the existence of the utmost good faith between insurer and assured throughout the contracting period. The duty of good faith requires the assured to disclose all material facts known to him or which in the ordinary course of business ought to be known to him in order to enable the insurer to make a proper estimate of the risk. Concealment or misrepresentation of any material fact which is privately known to the assured may vitiate the insurance. Disclosure is necessary of every material fact affecting the risk, which would influence the judgment of a prudent insurer in fixing the premium or deciding whether or not he will take the risk. In the absence of enquiry, circumstances which diminish the risk need not be disclosed. As the duty of disclosure is restricted to facts within the knowledge of the assured, a mistaken statement honestly made about a material fact will not invalidate the contract unless there is some express condition to this effect. An express condition which is usually inserted relative to disclosure extends the duty of the assured by making the validity of the contract depend upon the accuracy of statements made by him whilst the insurance is being negotiated. In such a case where the assured has warranted the truth, any inaccuracy on his part breaks the warranty and avoids the contract. Also, unless the condition is limited by its terms to material misstatements, an immaterial misstatement avoids the contract. Moreover, failure by the assured to keep the insurer informed when material alterations arise in the subject matter of the insurance may constitute a breach of policy warranty.

The Principle of Indemnity

Contracts of insurance are either contracts of indemnity or of investment. Contracts of indemnity include all insurances except life and personal accident insurances, as these are really forms of investment.

For when policies of life or personal accident insurance mature on the happening of the event, the sum assured becomes payable without any need to prove financial loss. The usual contract obliges the insurer to pay a sum of money upon the happening of a specified event, but with indemnity insurance the event itself does not entitle the assured to payment of the amount insured. It is only when a financial loss eventuates to the assured that he becomes entitled to be indemnified. The amount of his indemnity is restricted to the actual amount of his loss and is determined in accordance with any limitation in the contract. Assuming the sum insured is adequate, the assured is placed in the event of loss in the same financial position which he enjoyed before the misfortune arose. The assured may take out as many policies as he likes, but he cannot recover altogether more than the amount of the loss. In the absence of the principle of indemnity insurance would be merely a gamble upon the happening of an event which would benefit the insured and, as a result, over-insurance would tend to be the rule rather than the exception.

The Principle of Average

Policies of non-marine insurance, unlike contracts of marine insurance, are not subject to average unless the contract provides otherwise. In the event of under-insurance, the assured is not necessarily penalized as he can recover the full amount of the loss, whether partial or total, up to the amount insured. If the amount of loss or damage is less than the sum insured, the full amount of the loss is recoverable unless the policy contains an average clause, as is usual in the case of fire policies, which makes the insurer liable only for such proportion of the loss as the sum insured bears to the value of the whole property. The assured is considered as his own insurer for the balance. For example, if the value of the property is £10,000, but the property is insured for only £7,500 and a loss is sustained amounting to £6,000, the whole amount of the loss is payable by the insurer provided there is no average clause. If the policy is subject to average, then the liability of the insurer is limited to only $\frac{7,500}{10,000}$ of the loss, that is, to £4,500. In place of the usual average clause, the policy may contain a condition which places a specified portion of the loss on the assured. In other cases, as in motor vehicle insurance, the assured may be required to carry all losses below a specific sum and so take full responsibility for minor mishaps.

The Principle of Subrogation

Subrogation is the right of the insurer to stand in place of the assured and avail himself of all his rights and remedies in respect of a claim paid under a contract of indemnity. The principle has been adopted in order to ensure the equitable operation of the principle of indemnity. For equity requires a person who recovers on a contract of indemnity to cede all his rights in respect of the subject-matter insured upon taking satisfaction from the person indemnifying him. The doctrine of subrogation applies whether the liability of the third party arises under contract or tort. Cases of contract arise, for

example, where responsibility is placed upon the third party as a tenant to safeguard property, whereas cases of tort arise where the loss is due to the wrongful act or default of the third party.

The insurer is entitled at common law to be subrogated to the extent of the loss paid in respect of all rights existing against third parties consequent on the loss and may require the assured to enforce these rights in his own name, but at the expense of the insurer. The right to subrogation arises only when the insurer has admitted liability to the assured and has paid him the amount of the loss.

If the third parties are insured, liability for the loss rests finally upon their insurer. Unless the policy otherwise provides, the assured is entitled in the first instance to claim a full indemnity under the policy, without previous recourse against third parties, so leaving the insurer to exercise his right of subrogation. The assured must not prejudice the right of subrogation. He is not entitled to settle his claim against the third party or take proceedings himself in enforcement of the claim without the consent of the insurer. However, partial subrogation arises where the amount of the loss exceeds the amount paid under the policy, and in this event, the assured is not necessarily deprived of his right to enforce the claim, but any proceedings taken must be conducted for the benefit of the insurer also.

The Principle of Contribution

The principle of contribution applies to contracts of indemnity, but not to life insurance or personal accident insurance. The right is one which may be restricted or excluded by the terms of the policy. The effect of the application of the principle is to limit the amount claimable from individual insurers so that the amount payable by each insurer is governed, not by the sum insured by him, but by his rateable proportion of the loss. Risks which are too large to be accepted by one insurer are usually dealt with through a "leading" office and scheduled in agreed proportions by several insurers. A collective policy may be issued by the leading office for all insurers scheduled, thus replacing more simply and economically the separate policies previously considered necessary.

Non-marine policies generally contain a contribution clause limiting the liability of the insurers to their rateable proportions of the loss. In this case, the assured cannot claim in full under any of the policies, as each insurer is liable only for the rateable proportion of the loss. If the conditions of the policies permit the assured to claim payment in full under any of them, subject to the right of contribution, he may do so, thus leaving the insurer under that policy to claim contribution from his co-insurers. No right to contribution arises except where there exists a common interest and a common loss caused by a peril common to the policies. Accordingly, the right does not arise where separate policies are taken out on the same property by, say, landlord and tenant, or mortgagor and mortgagee, in order to protect their separate interests.

Insurable Interest

All insurance policies postulate the happening of an uncertain event

and are invalid unless the assured has an insurable interest in the event. The assured must be in an equitable or legal relation to the subject-matter of the insurance as to benefit financially from its safety or by the absence of liability or be prejudiced financially by its loss or damage or the existence of liability. An insurance contract without an insurable interest is simply a wager. Owners, purchasers, mortgagees, bailees and trustees possess an insurable interest in property.

The treatment of insurable interest depends upon whether or not the insurance is based upon a contract of indemnity. In life assurance, the assured must have an insurable interest when the risk begins, although he need not retain it until the close of the life assured. In fire insurance, the assured must have an insurable interest at the time of the loss and there is no requirement that he need have any interest when the risk begins. The basis of recovery in non-marine policies is the value when the loss occurs.

General Hazards

The interests of the assured may be affected in three ways by the event. Life assurance, personal accident and sickness policies cover the risk that the event may, by acting upon his person, lead to death or injury. Fire, burglary, fidelity, plate glass and other policies cover the risk of the event causing loss or damage to his property. Employer's liability and third party policies cover the risk of the event imposing some legal liability. According to considerations of business and convenience, more than one kind of risk may be covered in a single policy ; for example, all three kinds of risk, personal, property and legal liability risks, are covered in comprehensive motor insurance policies, as all these may follow the same event.

Each business has its own problems, but many hazards can be minimized through good management practice. It is obviously unwise to be penny wise and pound foolish in not covering such general hazards as the risks of fire, loss of profits, public liability and property owner's liability or in failing to ensure, for instance, that a third party policy covers the acts and omissions of all employees working away from their main place of work where heavy hazards may be unexpectedly realized.

Since the Industrial Injuries Act placed workmen's compensation matters under State control, the injured employee tends to seek, whenever practicable, his retained right to claim against his employer at common law, so that the wise employer takes ample cover against this contingency arising. Group accident insurance is a useful aid where the employer wishes to pay salary or wages during absence from work through the effects of industrial accidents. Premiums are payable on the total remuneration within each group of employees, or in the case of small firms in respect of each named person. Special cover is advisable against the risks of travel by air, in connection with which a standing arrangement is desirable in view of the short notice at which these journeys are often undertaken.

Present social conditions emphasize the need for adequate cover against loss or damage to property by burglary and housebreaking,

although larceny cover is not usually available for business premises, and a burglary policy does not cover burglary or housebreaking at business premises involving collusion of an employee. In other cases, individual or group fidelity bonds guarantee the employer against loss through the dishonesty of employees in whom confidence has been placed. The policy usually covers loss by criminal appropriation of money or securities caused by the want of integrity, honesty, or fidelity of the servant and may include cover against acts which are not criminal, such as where the servant wilfully defaults or is negligent. Ample cover is desirable also for goods and cash in transit, although restricted cover only may be desirable for goods conveyed in the insured's own vehicles.

Engineering insurance provides an important cover for industrial concerns. It is important to ensure that a routine exists for notifying all changes to plant in case adjustments to policies are needed. Practical considerations are relevant in deciding whether the insurance company's inspection service only is necessary: for example, in respect of lifting gear and appliances, or whether full insurance cover is required as well. Third party risks in connection with passenger and goods lifts should be fully protected.

Fire Insurance

Unless the policy otherwise provides, the expression "fire" means something being on fire which ought not to have been on fire in circumstances which are accidental or amount to a casualty or could not have been foreseen, although the fire which caused the loss was lighted improperly, or, being properly lighted, was negligently attended. Fire does not occur within the meaning of the term unless there is actual ignition and not merely heating or fermentation unaccompanied by ignition. Therefore, unless otherwise specified, the assured cannot recover for a loss of goods consumed by a fire which the goods themselves have generated. However, in order to constitute a loss within the meaning of such a policy, it is unnecessary to show that the subject-matter of the insurance has been actually burned—it may have been damaged in the process of quenching a fire. On the other hand, it is essential to prove that the loss was directly caused by the fire, as where the loss incurred was the necessary or the reasonable and probable consequence of the fire. These conditions obtain where no loss would have arisen in the absence of the fire, or where loss is sustained in saving property from the fire or in checking the spread of the fire. Hence, losses only remotely connected with the fire are not usually covered by an ordinary fire policy; for example, loss of profits. The cause of the fire is immaterial, unless the fire was deliberately started by or with the knowledge or consent of the assured for the purpose of destroying the property, for in such cases the assured really causes the loss.

The assured cannot recover under the policy where the fire was caused by an excepted peril such as riot, civil commotion, military or usurped power or, to some extent, explosion. Explosion may involve loss by concussion and loss by fire consequent on the explosion. Explosions and their consequences are usually covered by express

conditions in the policy. Generally, liability is accepted for loss caused by the explosion of boilers used for domestic purposes only and where the loss is due to the explosion in a building not forming any part of a gasworks, of gas used for domestic purposes or for lighting or heating the building. Liability for loss caused by fire resulting from explosion is not usually excluded, so that liability for loss by concussion is alone excluded. Additional cover to the standard fire insurance policy is usually available at reasonable rates for insurance against explosion, storm, flood, tempest and the bursting and overflowing of waterpipes, etc., as well as against the risks of damage by or from aircraft. A usual inclusion in fire policies covers employees' clothing, cycles and effects, and, where appropriate, working tools and instruments, with a limit on each main item for each employee.

The sum insured under a fire policy represents the maximum amount for which the insurer accepts liability subject to the operation of the principle of indemnity and, where applicable, average. The maximum amount recoverable is equal to the proved loss or the sum insured, whichever is the lower in amount, determined by the market value which the fire has taken away from the property, or the cost of reinstatement applicable upon the exercise of an option given to the insurer by a provision in the policy of reinstating the property instead of paying cash. In appropriate cases, the "local authorities" clause may be included to make the insurer liable for extra cost of reinstatement in conforming with the exceptional requirements of local authorities for building improvements consequent on damage by fire and other hazards. Generally speaking, fixed assets such as buildings, plant and machinery should, under present price conditions, be insured for their reinstatement cost, whilst stock-in-trade should be covered for its market value at the time of loss and work-in-progress for its cost. Special consideration is needed in cases where obsolescence has seriously depreciated values. A replacement cost basis is applicable to wholesale and retail stocks, together with all duties and purchase tax paid or payable. There is, however, no guarantee of full indemnity even when the full amount insured is adequate, if individual items have not been properly estimated. On the other hand, economies may be possible, without loss of security, by making careful arrangements where premium rates for various factory locations show significant variations.

Fire policies are not usually subject to average, although the *pro rata* form of average is often applied when one sum covers two or more separate risks or in respect of certain industrial risks or of stocks covered by declaration policies. Declaration policies, like adjustable policies, are used, subject to a declared minimum premium, in order to avoid overpayment of premium in respect of fluctuating stock-values and are issued for the maximum amount likely to be at risk during the period of cover. A provisional payment is made of 75 per cent of the maximum premiums and monthly declarations are made to cover the values at risk, so that an adjusting premium or credit may be given at the end of the insurance period. Adjustable policies are ordinary policies for fixed amounts and contain provisions for making such

amendments to the sum insured as may be necessary during the term of the policy.

Consequential Loss Insurance

Insurance against loss of profits provides a means of safeguarding the income of a company against reduction arising from the interruption and disturbance of business by fire damage. The incidence of damage from other hazards, in addition to the perils usually covered in fire policies, can be included in the insurance—loss of gross profits arising from damage by aircraft, storm, flood, explosion, breakdown of key plant, etc. Moreover, the risk may be extended from the assured's own premises to cover premises from which important component parts or power supplies are obtained, except that loss of gross profit from the incidence of load-shedding cannot be included. The consequential hazard of loss of profit is greater for a company with a relatively high proportion of fixed cost than for one with a low break-even point, because economies of a temporary nature cannot usually be made on costs which are relatively fixed.

In the majority of cases, the amount of the insurance should correspond fairly closely to gross trading profit, covering net profit and those standing charges which will continue to have to be met even in the event of serious damage caused by one of the perils included in the insurance. It is open to the assured to indicate which of his charges he regards as standing charges for the purpose of the policy, and it is usually advisable to include cover for the remuneration of key personnel so that their services may be readily retained in spite of loss arising. Obviously, it is essential to have their services during a period of rehabilitation. Where shortages of skilled labour prevail, it is also advisable to include cover for their wages. In addition to protecting the assured against loss of profit, cover is provided for the increased cost of working necessarily and reasonably incurred upon a claim arising, to the limit of the extra estimated amount that would have been payable under the policy due to increased shortage of turnover if the expenditure had not been incurred. In view of the fact that the capital value of a business depends largely on its earning power, a loss of profits insurance provides in effect cover also against loss of capital. These policies do not, however, cover such consequential items as claims for loss of life or limb, or failure to recover outstanding debts due to loss of records. The condition precedent to a loss of profits policy is that, on the happening of the damage, an insurance shall be in force covering the assured in the property at the premises against such damage as is visualized, so that in the event of damage the assured will have funds available to minimize consequential loss by reinstating his business as early as possible.

Few profits policies are issued with a period of indemnity of less than twelve months, whereas two- and three-year periods are common. It is the anticipated net profit and standing charges during the indemnity period that have to be envisaged when assessing a profits insurance sum. A realistic view of the possibility of fire is required when fixing the period of indemnity.

The premium and the cover provided by this type of policy are related to the damage hazard which is indicated by the average rate for damage insurance of the kind covered on the contents of the premises, the annual gross profit figures to be insured, and the indemnity period covered. The premium percentage reduces as the indemnity period extends beyond twelve months. The cost of premiums is allowable as an expense for income tax purposes, and, as a corollary, any benefit received under the policy is taxable as if it were ordinary income of the assured. In view of the fact that rates of premium are low in relation to the magnitude of the cover provided, there is considerable merit in providing ample margin in the sum insured in order to allow for the incidence of expanding business over the period of indemnity, particularly as profits policies can be made subject to adjustment clauses under which the premium is calculated finally on the actual gross profit of the assured. It is, therefore, possible to over-insure, without charge, in the interests of safety provided the actual limit on which refund can be taken does not exceed half of the total premiums paid. On the other hand, the usual "average clause" in the policy reduces any claim made in the event of under-insurance.

The amount recoverable under a claim is ascertained as the product of the rate of gross profit, that is, net profit plus standing charges (say, 12s. 6d. in the £) and the estimated amount of short-fall in turnover due to the damage incurred during the maximum indemnity period covered by the policy. The gross loss is reduced by any amount saved during the indemnity period in respect of standing charges which cease or are reduced by reason of the damage. In the event of turnover being maintained through the help of business associates, such turnover must help to reduce the insured's loss for the purposes of assessing the amount due under the policy.

Credit Insurances

When liquid resources are generally in short supply, there is always the risk that the unexpected insolvency of a large firm may cause financial embarrassment to and possibly the insolvency of some of its creditors. In these circumstances, particularly, the insurance of credit risk is preferable to the normal procedure of creating a reserve for bad debts in the accounts. Not only may a bad debts reserve be totally inadequate to cover all losses which may arise, but, when a bad debt actually arises, cash required for current trading is in effect drained from the business, as the bad debt represents a definite loss to the company. Furthermore, a transfer of profit to a bad debts reserve does not avoid a charge for taxation, although any actual loss may be regarded as a trading expense when incurred. The position is otherwise when a credit risk is covered by insurance effected either through a normal credit policy, or, in the case of export trade, through the Export Credits Guarantee Department of the Board of Trade.

Credit insurance is not only advantageous when actual bad debts arise, but it is also effective in minimizing their occurrence. Insurers, by reason of their widespread activities, are better able to make

realistic assessments of credit-worthiness than the insured and often are the first to hear that a particular firm is in difficulties, and are, therefore, able to protect the interests of their clients. Apart from their advantages in the way of loss prevention and restoration, the interest in credit insurance policies, or in specific transactions, can be assigned to recognized banking houses, and in this way the negotiation of advances or the discounting of bills may be facilitated. The insurance company may, in approved cases, give a certificate of insurance to a recognized bank, accepting or discount house, undertaking to pay the insured percentage of an accepted bill of exchange within ninety days of the due date in accordance with the terms and conditions of the policy. Moreover, the existence of a credit insurance policy may enable the insured's banker in granting credit facilities to "write-down" the value of debtors in the insured's balance sheet, not by a nominal 25 per cent, but merely by the proportion of risk retained by the insured; for example, 25 per cent of 20 per cent, *i.e.*, 5 per cent, of the value of debtor balances where the insured is indemnified for 80 per cent of his losses. Under a credit insurance policy it is usual to obtain an indemnity at a rate normally within the range of $\frac{1}{8}$ to $\frac{1}{2}$ per cent of the turnover insured for the major part, say, 75 per cent to 90 per cent, of the risk involved, according to the class of business, terms of trade, the distribution of accounts and the credit standing of those concerned.

The whole turnover policy, which is the standard form of cover, is based on the principle that the insured retains a personal interest in each debt, and the cover extends over the normal spread of commercial risks rather than over a selection of risks made by the insured. Thus the insured avoids selecting the wrong accounts and benefits from the reduced rate of premium possible because of the greater spread of risk. An important service is rendered to the insurer in the form of expert advice designed to minimize losses. This type of policy covers all credit sales by the insured during the currency of the policy, normally a period of one year, with the exception of those made to associated companies, nationalized industries and public authorities, through the insolvency of a customer or his protracted default which is deemed to arise when he allows a payment to fall into arrear, without reasonable excuse, for a period of more than three months after its due date. The usual arrangement is for the insurance company to fix a "discretionary limit", below which credit risks are dealt with by the insured subject to the maintenance of normal credit precautions and above which credit limits are fixed by agreement. The discretionary limit is fixed according to such factors as the credit experience of the insured and the industry in which he operates his business. The insured may, of course, exceed approved credit limits at his own risk in respect of the excess. The arrangement regarding claims in the home trade is that whilst a claim is paid within thirty days in a case of insolvency, a period of six months is required in the case of protracted default subject to satisfactory proof of loss. During this period the insurance company itself can endeavour to induce the buyer to settle his account. Loss occasioned by repudiation of contract on the part

of the buyer or his refusal to pay as the result of dispute over the goods is excluded from the scope of the credit insurance policy.

Credit insurance is available also in respect of specific accounts with buyers named in the policy in accordance with the limit of indebtedness accepted. The open credit, turnover declaring, policy may be taken out for one or more specific transactions, or for a turnover respecting an estimated series of transactions during the year. Similar protection is provided by the bill of exchange, turnover declaring, policy, except that the insurance company's liability relates only to duly accepted bills declared to the insurance company as soon as drawn.

The adjustable time policy applies where regular business, or business subject to seasonal fluctuations, takes place with specified buyers. An initial deposit premium is payable on issue of the policy, and is adjusted at percentage rates on the gross amounts owing by buyers within the limits scheduled as at a fixed date in each month. The insured may exceed the scheduled limits at his own risk without invalidating the cover provided, but excess amounts are covered automatically to the extent that cover becomes available in place of earlier amounts cleared. This type of policy is not suitable for extension to cover contractual loss on goods undelivered, for which purpose the turnover declaring policy is, however, appropriate. Other credit policies are available to cover special risks which may arise on an insolvency. For example, losses may arise in connection with constructional works if the company which has awarded the contract becomes insolvent, or goods may be paid for and not subsequently delivered owing to the insolvency of the seller, or products may have to be resold at a loss when the original purchaser cannot take delivery because of his insolvency.

Export Credit Guarantees

The Export Credits Guarantee Department offers cover against the risks associated with overseas trade.

The standard policies which are equivalent to the whole turnover policy of the commercial insurers, are the contracts and shipments policies. These policies are designed to cover all business of the exporter, although exceptions are possible if special circumstances warrant the exclusion of particular overseas markets.

The contracts policy covers in principle the overseas trade of a manufacturing exporter during a period of twelve months and protects him from the time he accepts the order until he receives payment in the United Kingdom. The risks covered are any or all of the following :

- (1) The credit risk arising from the possible insolvency of the buyer or failure of the buyer to pay within a year from due date the contract price for goods accepted by him ;
- (2) The transfer risk whereby a solvent buyer is unable to effect transfer payment in sterling to the seller in the United Kingdom. Exchange restrictions or control could make payment impractical. In case of a claim, the exporter would normally have to wait six months from the due date of payment before he could secure payment under the policy ;

- (3) Risks arising from the occurrence of war between the buyer's country and the United Kingdom, or the occurrence of war, hostilities, civil war, rebellion, revolution, insurrection, or other disturbances in the buyer's country ;
- (4) Export licence risks. Delivery may be frustrated where export licences are cancelled or not renewed, or where impositions are placed on the export of goods not previously subject to licence ;
- (5) Interruption and/or diversion of voyage outside the United Kingdom, whereby additional charges are incurred in respect of goods shipped and these cannot be recovered from the buyer ;
- (6) Omnibus cover, covering any other risk, excluding the exchange risk and outside the control of the seller or buyer arising from events occurring outside the United Kingdom.

These arrangements cover the manufacturer who accepts orders for specialized products where their resale involves re-processing costs or sale at a loss. The manufacturer of standard products is also covered against loss on resale, although here the problem of disposal is simpler. The maximum amount covered is 85 per cent of any loss due to credit failure (insolvency or delayed payment) or 90 per cent in all other cases. Thus, the department requires the seller to retain a certain proportion of the risk, which means in general that he risks his prospective profit. An important point is that the policy cannot be construed to place on the department any loss arising from the bad faith of a buyer who refuses to take delivery. The seller in such cases must take such legal action as is available to enforce his contract with the buyer ; but if he manages to force him into insolvency with, for instance, a claim for loss on resale, the transaction returns within the ambit of the policy.

In the case of contracts for the sale of goods wholly or partly produced, or manufactured, in the United Kingdom to a buyer who is, or is under the direction and control of, the Government or any department of the Government of a country or any municipal authority, and who cannot, by the law of the country to which such buyer is subject, be compelled, at the instance of the creditors, to submit, or consent, to any of the conditions (*e.g.*, bankruptcy or liquidation) upon the existence of which a buyer shall, under the terms of the policy, be deemed to be insolvent, the following causes of loss are added to those specified above and the department's guarantee under the policy is extended accordingly.

- (a) Failure or refusal on the part of the buyer to fulfil the terms of the contract of sale of the goods ; such failure or refusal not arising from any breach of contract or warranty on the part of the exporter, nor from any other cause within the control of the exporter.
- (b) The operation of a law or of an order, decree, or regulation having the force of law, which in circumstances outside the control of the exporter prevents, restricts, or controls the

transfer of payments from the buyer's country to the United Kingdom.

Losses resulting from the established insolvency of buyers are paid immediately after the occurrence, whilst losses due to protracted default are paid twelve months after the due date for payment. Claims otherwise arising are normally paid within six months after due date of the draft, or after the occurrence of the event giving rise to the loss. The principle of subrogation applies in accordance with usual insurance practice, whereby the department has the right to stand in the place of the exporter and avail itself of all the rights and remedies of the exporter. In addition, the department can require the exporter to take all available steps towards recovery, if it is considered desirable to do so in the creditor's name. Sums recovered are divided between the exporter and the department in the appropriate ratio 85 : 15 or 90 : 10, as the case may be.

The shipment policy is appropriate where "manufacturing risks" are negligible, as the policy is only applicable to shipments and not to contracts. It is available at lower rates of premium to meet the requirements of exporters who do not wish to cover the risk of loss prior to shipment. Business is automatically excluded where no insurable risk exists, *e.g.*, in respect of "letter of credit" business confirmed by a London bank before shipment.

The department quotes the premium for each country separately on a percentage basis. The premium varies according to the type of policy, the countries concerned, the class of trade, method of payment, etc. The contracts policy provides two revolving credits—a credit limit as specified and a contract limit of four times the credit limit, so that new business can be undertaken for an individual buyer to the extent of the limits outstanding at any time. Apart from limits sanctioned on specified buyers, standard policies generally carry "non-vetting" limits which enable the policyholder to ship to his buyer goods to stipulated values without prior reference to the department for credit sanction. If a claim arises in such cases, it is for the exporter to show that he had given the question of credit proper care and attention. A declaration of contracts and/or shipments made is sent to the department each month together with the appropriate premium.

The department also grants guarantees to cover medium-term transactions, so as to cover capital-goods transactions, which do not lend themselves to short-term arrangements. As these transactions are usually specialized, the proposal and policy are arranged to suit the needs of the case. The department has also provided guarantees for periods exceeding five years covering contracts with foreign governments.

Cover is also available in respect of transactions entered into by overseas subsidiaries of United Kingdom companies which are fully controlled by their parent company.

The omnibus cover provided excludes the exchange risks. When goods are invoiced in the currency of the buyer, the seller takes the risk that the ultimate proceeds may yield less than he anticipated. When the price is quoted in the currency of the seller, he runs no exchange

risk as he receives the anticipated proceeds ; but the buyer has the risk of having to provide more of his own currency than he contemplated in order to pay the fixed amount of foreign currency. In cases where prices are expressed in currencies of a third country, the manufacturer is well advised to act on the advice of the foreign department of his bank in order to minimize possible loss on exchange.

Banks provide a useful means of cover against the exchange risk for both importers and exporters through the medium of forward exchange dealings, whereby the bank agrees to buy or sell foreign currency at a pre-determined rate of exchange. In conditions for forward contracts, the bank generally provides that its clients must maintain a percentage margin of the sterling equivalent in some form of security, which may be done by transferring the amount from the client's current account to a special deposit account. The marginal deposit must be maintained so long as the contract remains open, so that consequent additions must be made to it if the rate moves against the client. The marginal deposit is refunded when the currency is delivered.

The Export Credits Guarantee Department provides various other policies to meet the special requirements of exporters in suitable cases, and is always ready to listen to any proposal and to advise on the limits of risks and procedure. In particular, special policies are offered to encourage transactions with Canada, the U.S.A. and the dollar markets of Latin America by providing cover against the hazards connected with market surveys, products testing, advertising or promotional expenses and stock-carrying. There are also joint venture facilities, an entirely new conception in credit insurance, which provide long-term cover to the exporter who wishes to establish a permanent trade in these markets.

In order to assist in the long-term finance of large-scale contracts of a capital nature, the department has developed special guarantees to banks. These necessarily cover only the risks from date of acceptance of the goods by the buyer (as the exporter himself may separately insure the "pre-shipment" risk with the department) ; but thenceforth guarantee to the bank that the department will pay to the bank up to 85 per cent of any instalments remaining unpaid by the buyer within a specified time after due date. This arrangement, therefore, affords firm security to the bank, which is not in any way dependent on the terms of the contract of sale between the exporter and the buyer.

CHAPTER 21

PENSION SCHEMES

THE object of a pension scheme is clearly to provide pensions for members on their retirement and thus to satisfy the moral obligation of the employer to make financial provision for his employees in relation to the value of services rendered. The problem of providing for retiring employees regularly arises when the only source of financial provision is from current revenues. This position is unsatisfactory both to employer and employee, for it puts the employee in a state of doubt and insecurity for the future and often the need to make provision arises at an inconvenient moment for the employer.

The position is improved when the employer creates an unalienated fund by accumulating a reserve in the balance sheet to provide for payment of pensions, but, unless the amount placed to reserve is, in fact, represented by a fund invested outside the business, it may be equally inconvenient for the employer to find the necessary cash when the time arises, as the reserve will probably be used in the business as working capital and thus locked up in plant, stocks or debtor balances. Even where adequate reserves are kept separately, they are generally not protected against claims of creditors or shareholders in a liquidation of the company. Moreover, in a separate fund, the level of pensions available suffers, owing to the absence of taxation relief as secured when there is a properly constituted pension scheme approved under the provisions of s. 379 of Part XVII of the Income Tax Act, 1952, for whereas the employer can charge against his profits for taxation purposes the actual pensions paid, he cannot charge as expenses for tax purposes the actual allocation made each year in building up the fund, and the interest earnings of the fund are not tax free. This type of provision also has the serious disadvantage of offering no real security of pension to the employee.

In a good trading year, the opportunity may arise to clear the company's liability towards its old employees who are not covered by a general pension scheme. A lump sum which was paid by a company to purchase an annuity in order to end the company's liability to pay a pension to an employee has been allowed as a trading expense for income tax purposes on the principle that the amount was paid to avoid future expense and did not create a tangible asset for the company but merely compressed into one year a recurrent revenue charge.

Private and Life Office Schemes Compared

Pension schemes are preferably established either as private schemes, whereby a trust is established to which periodic payments are made and from which all benefits are payable ; or as life office schemes, whereby future benefits are payable in return for premiums paid to a

life assurance company. Many variations of each scheme are possible and it may be advantageous to have a private scheme in which some of the risk is re-insured through a life assurance company.

Whereas both classes of scheme necessarily involve some paper work on the part of the employer, the administrative costs of a private scheme, in covering actuarial and legal fees, annual audit fee, quinquennial valuation fee, brokers' expenses, and the cost of collecting contributions and paying benefits, are invariably much less than with a life office scheme. This fact is not, however, apparent when a private scheme is originally prepared, as the actuary normally makes an allowance for contingencies and variations, which rarely occur to the extent covered, with the result that most private schemes eventually accumulate a surplus which is reflected in increased future benefits to members. Although the life office includes a margin in its premium to cover possible adverse fluctuations, the risks are spread when the office covers a number of schemes, but, unless special profit-sharing arrangements are made the whole of any benefit enures to the life office. The cost of the life office scheme is also necessarily increased by the profit margin required by the life office, whereas nearly all the contributions to a private fund go to provide benefits. Nevertheless, the life office scheme generally offers the maximum available security of capital and stability of benefits.

Funds with numerous members contributing and benefiting give greater financial stability than schemes which have only few members, for the risks of the premature death or the exceptional longevity of highly paid members and of unexpected increases in earnings may provide severe hardship to a small scheme. Where the number of members is too small for the law of averages to operate satisfactorily, there is clearly a case for insurance. A scheme having about seventy members is regarded as being on the dividing line between a small and a large fund. The disadvantage of the small scheme is overcome when the accumulated contributions standing to the credit of each member at pension age are used to buy a pension for him from a life office. In any event, some of the risk of a small scheme may be covered on a re-assurance basis with a life office. The desirability may arise to re-insure the risks attaching to certain members of a fund, as in the case where an executive pension fund has a few members for whom the amounts at risk, by reason of their level of earnings, are much greater than for the average member. In other cases, some measure of re-insurance may be arranged to secure the benefits of the greater experience in investment problems to be expected of a life office, although in the larger funds there is little point in exchanging one average risk for another, with an additional cost to cover the profit of the life office. Incidentally, assurance companies generally adopt a private scheme for their staffs, but as they are experts at investment the management of a fund presents to them no difficulty or inconvenience. Although the investments of life offices are widely spread, the only people who share in any profits arising from interest receipts in excess of actuarial expectations are those holding with-profit policies and, of course, shareholders in proprietary offices.

Appreciation or depreciation of investments may have a considerable effect on the rate of accumulation of a fund. The benefit, or disadvantage, as the case may be, falls entirely on a private scheme, whereas with a life office scheme the effect is felt by the insurance company. In the event of investments depreciating, life offices usually require higher premium rates in consequence ; accordingly employers should not commit themselves to any long-term contracts with life offices which do not offer reduced premiums consequent upon increased earnings on investments. The risk of capital depreciation in connection with private funds may be practically eliminated by placing amounts to be invested on deposit with an old-established life office. The interest rate allowed is related to the gross rate of interest earned by the life office for the previous year. Withdrawals can be made as required for the purpose of the pension scheme. This arrangement not only gives protection against depreciation of investments and provides an attractive yield, but it avoids the usual expense and responsibility of making and managing various investments.

A private scheme is usually less rigid in operation than a life office scheme, as it may be more readily adapted to suit changing circumstances, whereas with a life office scheme a close link is necessarily maintained between benefits and contributions. No alteration, however desirable, can be made to a life office scheme without the consent of the insurance company, which invariably retains the right to alter its tariff for future entrants. Withdrawal from an established contract on which premiums have been paid is usually uneconomical.

With an assured scheme, the life office needs to know in detail the extent of its risk on each employee's life, so that exact charges are made for each employee and collected accordingly, whereas under a private scheme, so long as the employer's contribution is adequate, there is no need for its allocation to individuals. Accordingly, contributions to a private scheme may be collected according to one rule and benefit paid according to another, provided these amounts balance in total over a reasonable period.

Under any scheme, if a member retires early on pension, the money for this has to be provided from somewhere. If many retirements take place, the employer may find himself in practice called upon to cover this extra cost. In the case of a private fund it may be that unduly generous provisions may result in a liability far greater to the employer than that anticipated, whereas with a life office scheme the employer would have the advantage of knowing the cost when making such a decision.

If the Commissioners of Inland Revenue approve a private scheme for taxation purposes under the provisions of the Income Tax Act, 1952, both the employer's and the employee's ordinary annual contributions rank as expenses in their separate tax assessments—income tax, profits tax and surtax, as the case may be. In the case of a life office scheme, on the other hand, the employee usually obtains only the limited relief applicable to life insurance premiums. This difference is important for employees in the higher salary groups.

A great advantage arises in the case of a private scheme so approved,

for it enjoys complete exemption of income tax on its investment income, whereas the net rate of tax on the income of life offices usually absorbs almost half of the income from interest earnings. In the private scheme, interest may be received gross, so there is no need to wait until the end of the year in order to recover tax paid by deduction. Pensions are taxable in the hands of the recipient as earned income, even when the pension is a voluntary one. The earned income relief applies equally to pensions payable to the widow or child of a deceased employee.

A member who leaves a life office scheme before becoming entitled to a pension receives a refund of contributions made, less a proportion of the employer's contribution, but, with a private scheme, the employer's past contributions in respect of the leaving member remain in the fund. If the benefit from this source is taken into account in due course by the actuary, future contributions will be reduced accordingly, otherwise the surplus from withdrawals creates a reserve with an ultimate reduction of future contributions or an increase in pensions. Hence, a large labour turnover benefits the members of a private fund, but not those of a life office scheme.

Normally, life office schemes come within the restricted tax allowances provided by the Income Tax Act, 1952, but the greater benefits of the taxation provisions applicable to approved schemes may be obtained by setting up the scheme in two stages. These greater benefits give tax relief to employees' contributions at the highest rates they are paying income tax. Refunds made to them on withdrawal attract tax at one-quarter only of the standard rate. The two stages comprise, firstly, the creation of the scheme under a trust deed as if it were a private scheme, with scales of benefits and contributions fixed by reference to a table and giving wide power of re-insurance to the trustee or management committee; secondly, the re-insurance under these powers of all the benefits with a life office in the names of the trustees or management committee, with an arrangement that the life office may pay pensions as agents for the trustees or committee, as the case may be.

Group Life Assurance

In order to afford financial protection for the dependants of employees in the event of death during service, the employer may take out a life assurance policy to cover all his employees, whereby a fixed sum or an amount related to annual earnings is payable at date of death. The cost is generally borne by the employer and each employee is supplied with a certificate stating the benefits available. The policy is an annual contract normally renewable at the option of the employer. Group life assurance is available at low rates as compared with individual life assurance, as much administrative work is avoided. The aggregate premium is calculated according to the age distribution of employees and the sums assured in each case or group of cases. A desirable provision covers the payment of the sum assured if and when an employee becomes totally and permanently disabled. Another desirable provision permits an employee upon leaving the employer's service, say, before attaining the age of sixty years, to obtain an

individual policy with the life office at the rates appropriate to his age, to the amount for which he is covered under the group policy and without evidence as to his state of health.

Private Pension Schemes

The legal basis of a private scheme is contained in the trust deed and rules of the scheme which provide for the appointment of trustees to administer the scheme. Where individuals are named as trustees, some expense arises when any of these ceases to act, in transferring the funds into the names of new trustees. Alternatively, the bank may act as trustee, or as a nominee, to hold the securities of the trust. Another arrangement is to incorporate a private company limited by guarantee to hold the funds or securities and to administer the scheme.

Although an employer can hardly compel his employees to join a newly-established pension scheme, he can make it a condition of employment that future entrants into specified classes of employment shall join the scheme. If the scheme is to be approved for taxation purposes by the Commissioners of Inland Revenue under the provisions of the Income Tax Act, 1952, membership of the scheme must be co-existent with employment in the service of the employer, although the Inland Revenue would probably agree to a person continuing in his employment and leaving the scheme if continued membership would involve hardship. Provision also needs to be made in a scheme to cover the position which usually arises in cases of broken service. There should be no objection to giving an employee full pension rights in respect of previous contributory service, provided he repays to the fund the amount repaid to him with interest to the date of repayment.

The first consideration is to ensure the actuarial soundness of the scheme, so that benefits and accruals over the years will be at least sufficient to meet all calls made on the funds. The highest possible interest yield is required compatible with security of capital. Although many funds have been built up on gilt-edged stocks, mainly redeemable, trustees have been given powers to enable them to widen the scope of their investments with preference shares, debentures, mortgages and "blue-chip" equity holdings. Skilled advice is essential in the management of investments, and the management committee of the pension fund should delegate adequate powers to individuals in order that market operations may be undertaken at short notice within the framework of an agreed investment policy, in which security of capital is paramount to interest yields. The degree of liquidity required depends upon the emergence of pension liabilities and other outgoings. If the scheme is started in a modest way as far as benefits are concerned, these can always be augmented as funds accumulate.

Sometimes the employer guarantees a minimum interest yield during the early years of a scheme. When pensions are related to average salaries, financial strain on the scheme is most reduced and the hazard of rising salaries is minimized, but the amount of pension may be inadequate in relation to an employee's final salary. When pensions

are related to final salary an extra cost is thrown on the scheme, to cover which higher contributions are needed.

The decision has to be taken whether contributions shall be contributory or non-contributory. Whether the total contribution is paid entirely by the employer in the first place, or whether it is first of all partly paid to the employee as remuneration and then contributed by him to the scheme is, to some extent, a psychological question, but the fact remains that total contributions can come only from successful trading. The contributory fund may permit of higher benefits and emphasizes the fact that the employer also contributes, for such a fund requires employee-representation, whereas, with the non-contributory fund, the employer's contributions tend to be taken for granted and their amount tends to be obscured. On the other hand, the non-contributory scheme avoids certain administrative duties such as the need to make regular deductions from salaries and to maintain detailed records of contributions. It also leaves the employer in more complete control of the scheme and gives him wider discretion in its management.

The problem of fixing pension benefits may be approached by arranging reasonable contributions and fixing pensions strictly according to the total funds available. The "money purchase" system requires that the benefits to be provided in respect of a year's contributions are covered by the contribution made in that year. There is thus no risk of salary fluctuations placing a strain on the scheme. If a member leaves the scheme his contributions are repaid with interest and where the scheme is contributory those of the employer are retained and thereby enhance the value of the fund to its members. Upon retirement of a member, a pension may be paid from the fund or an annuity may be purchased from outside. ¹¹ A disadvantage is that a member cannot estimate with accuracy the pension he will receive on retirement, which can be settled only by periodic actuarial valuations of the fund. Members with a short contributory service and those who have to retire early for health reasons do not obtain an adequate pension through this method, and long-service members whose earnings improve during the later years do not obtain a compensating increase in pension.

Alternatively, the problem may be approached by arranging reasonable pension scales and fixing contributions accordingly, either by reference only to fixed pensions, or by reference to pensions related to earnings and service. Members may contribute to fixed pensions by a fixed payment which produces a pension payable according to age of entry, or on a scale which varies with age of entry into the scheme, so that in both cases the benefits of the scheme are clearly discernible by the members. The fixed payment method has the disadvantage of not providing adequate pensions in all cases, but this disadvantage is avoided when fixed payments are on a scale which varies according to age of entry, although this has the administrative disadvantage of requiring different rates of contributions for individual members and the financial disadvantage that rates of contributions required for late entry may be prohibitive. When a pension is based on the length of contributory service, the contributions required for solvency are

relatively greater for late entrants, because the interest-earning potential is greatly reduced.

Pensions may be arranged to accrue on the basis of a fixed fraction of earnings for each year of service where contributions are a fixed proportion of current earnings. Pensions assessed relative to earnings during the final years of service are advantageous to contributors, as their future pensions are in closer relation to current earnings during the years immediately prior to retirement. The disadvantage of this arrangement is the cost to the fund in excess of the amount required when pensions are based on average earnings, although when pensions based on average earnings over the working life of the contributor do not provide adequate pensions, the employer may feel obliged to make *ex gratia* additions. Usually contributions and pensions are related to basic earnings, because bonuses and commissions are uncertain in amount.

Employees and employers are making substantial contributions under the National Insurance Acts to secure benefits for employees and their dependants, which may be wholly or partly duplicated under a private pension scheme unless the benefits provided by the scheme are reduced accordingly. In a non-contributory scheme where benefits depend on service and remuneration, the weekly pensions may be reduced by the amount of the national pension. In a contributory scheme it may be desirable to exclude some portion of earnings from the scheme or to assess the pension on a reduced fraction of remuneration for each year of service, but special consideration needs to be given to employees who do not qualify under the Act for national pensions until contributions have been paid for ten years. Where benefits under private schemes are independent of service or remuneration, pensions may be reduced by the amount of the national pension. A simple routine is indicated in order that any amendments of national pensions in the future may be taken into consideration without the need to make complicated adjustments and calculations.

In order to ensure that existing employees are treated as generously as all future employees will be under the scheme, the ideal arrangement is to calculate the pension of an employee entering the scheme on its inception exactly as if the scheme had been operative for the whole of that employee's service. As the cost of doing this is often prohibitive to the employer, it may be necessary to provide past-service pensions on a reduced scale in comparison with that adopted for future service pensions. Even though arrangements may be made in a scheme for the payment of contributions equivalent to those which would have been payable in the event of the scheme having been commenced some years earlier, the interest earnings and other accruals which normally arise are, of course, non-existent, whilst payment of back contributions does not cater fully for the needs of older employees. A suitable compromise is to credit non-contributory service at half the rate of contributory service in assessing pensions and for the employer to shoulder at least the major part of this burden. When a contributory scheme is established on a basis of equal contributions for future service, it is reasonable to assume that only the half which would have been pro-

vided by the employer over the past should now be found by him. In some cases, it is desirable to fix a minimum pension irrespective of past earnings in order to make the scheme more attractive to certain employees. In any case, as a matter of practical convenience, it is usual to relate pensions, in so far as past service is concerned, on the basis of rates of remuneration in existence when the scheme commences.

In order to attract the employment of professional and technical staff who have experience with other firms, it may be necessary to back-date their entry in the pension scheme at the cost of the employer, except, possibly, in rare cases of private schemes which permit the transfer of cash and which are approved for taxation purposes by the Commissioners of Inland Revenue. The practice adopted by local authorities whereby employees transferred from one authority to another carry a transfer value for pension fund transfers could with advantage be extended to industry.

When payments in respect of back contributions are met, it is usual to spread their cost by making appropriate annuity payments to the fund. Alternatively, the extra cost may be paid as a single capital sum sufficient to accumulate at compound interest to the future amount required.

The solvency of a fund requires not only that sufficient funds are available for immediate needs, but also that the fund will, in due course, be able to provide for future benefits. Various factors may contribute to the insolvency of a fund, such as depreciation of its investments, decline in interest rates and increased longevity of its members. The rapid development which is continuing to take place in medicine and surgery with such profound effect on increasing longevity is a factor which is not without relevance regarding the actuarial soundness of pension funds. One doubts whether the secular trend of reducing mortality rates is generally appreciated by the layman. The need to provide higher pensions consequent upon inflation is another factor which needs consideration. Other factors may affect solvency ; for instance, the capital liability which arises when pensions are partly assessed on non-contributory service and the provision made when employees in the higher age-groups are admitted to the fund.

In many cases, the employer agrees to guarantee the solvency of the fund, but this practice is advisable only when the employer is assured of his future earning power, bearing in mind all the vicissitudes of trade.

When provision is made for early retirement at the request of the member, the taxation position is affected unless the rule restricts early retirement to a period within ten years of the normal retirement date. In these cases a reduced pension is payable ; for example, a pension taken five years before normal retiring age may be reduced by almost 25 per cent, whereas one taken ten years before normal retiring age may be reduced by almost 50 per cent. In the case of early retirement by reason of impaired health, an ill-health pension may be given after, say, ten years' service, proportionate to the pension at normal retiring age, or the member may be given, in the form of an annuity, the estimated value of his actuarial reserve, which will be the amount held in the fund to meet the accruing liability in respect of the member. In the event of retirement on account of ill-health before the qualifying

period, the case may be treated as a withdrawal and a return of accumulated contributions made. Disability benefits are a desirable feature in any scheme, but, unless the scheme is carefully administered, this advantage may tend to encourage unwarranted claims to the detriment of members generally.

It is advisable to rule that members must retire on reaching normal retirement age, unless requested by the employer to continue working for a further period. On the other hand, it is sometimes advantageous to defer obligatory retirement from a new scheme, because in these it is the older employees who are so expensive to retire and are a burden on the funds. In view of their reduced expectation of life at a later retiring age, the cost of the pension to the fund may be less than when retirement occurs at the normal pension age, even though an augmented pension is provided on late retirement. The National Advisory Committee on the employment of older men and women has recommended that positive inducements should be given to work beyond the normal retiring age, which should be preferably referred to as the minimum pensionable age. Although the Revenue authorities are prepared at the time of writing to agree to a pension being paid to an employee who continues to work beyond the normal retirement age, they decline to permit any corresponding alteration to be made in the rules of an existing fund or scheme, or to permit the introduction of a corresponding provision into any new annuity fund or scheme. If an employer agrees to retain the services of an employee on full salary beyond normal retirement age and to augment the eventual pension, the Revenue authorities do not normally object, provided the ultimate pension, as augmented by the late retirement factor, does not exceed the actuarial equivalent upon eventual retirement of a pension of two-thirds of the remuneration at normal retirement date had the pension been then taken.

A special case arises when a member is dismissed on the ground of redundancy and is unable to take advantage of any early retirement benefit. The rules may permit the withdrawing member either to obtain a lump sum payment, or to obtain a deferred pension on the basis of present contributions and future actuarial accumulations. In respect of employees dismissed for fraud or misconduct, the rules should permit the employer to recoup himself for loss or damage sustained and apply the residue, being the balance of the normal withdrawal benefit, for the benefit of the member's wife and dependants.

When a member dies after retirement, the rules may allow the payment to his personal representatives of the difference between his accumulated contribution and the total amount of pension paid, provided the pension has not been paid for longer than a specified period. Alternatively the pension may be guaranteed for a minimum stated period whether the pensioner survive or not. This is attractive to the older entrants, as a higher benefit usually arises. There is a heavier contingent liability than when the balance of members' contributions are repayable, which is obvious when one compares the comparative costs of providing benefits for members dying just before pension age and those dying just afterwards.

In order to cover the risk to a small fund of a disproportionate number of members experiencing exceptional longevity, it is possible, on the retirement of members in good health, to take up for them annuities equal in amount to their pensions, or, alternatively, for the trustees of the pension fund to take up deferred annuities commencing in, say, ten years' time, provided the pensioner is still living and to pay his pension in the interim from the pension fund.

A useful benefit which need not impose any extra cost on a scheme is one which allows a pensioner to surrender part of his pension for an annuity on his death and payable for life to his widow or a nominee dependant, provided the member is in good health on retirement and the annuity is based on actuarial calculations. If the member survives his wife, his pension continues at the reduced rate and the right to the widow's pension ceases in the event of his re-marriage. In order to cover the case of widows left by members who die whilst in early retirement, it is desirable to provide for a replacement of the normal withdrawal benefit in such cases by an annuity to the widow related to the member's accrued pension.

Although the main object of a pension scheme is to provide pensions on retirement, provision may also be made to provide death benefits to dependants of deceased members. Otherwise, in the event of the death of a member before retirement, his contributions should be returned to his personal representatives with interest, augmented, if possible, by the amount of the employer's contribution similarly accumulated. Life assurance may be provided on a group basis through a life office. Preferably, the arrangements should be compulsory rather than voluntary, for a compulsory scheme avoids any tendency for the fund to be loaded with sub-normal life risks ; or the difficulty which arises in a voluntary scheme when a widow of a deceased member requests an *ex gratia* pension which she cannot have by right owing to the negligence of her husband ; or the imposition of a high rate of contribution or a greatly reduced widow's pension when a single man marries late in life. In order to cover the contingency of death shortly after entry into the scheme, a minimum pension may be fixed, for otherwise the scheme may produce only an inadequate one. The widow's pension may be arranged to be payable throughout her life or until she remarries. Where orphans' benefits are included, these may be payable for each child at a fraction of the rate of the mother's pension until the child attains a specified age. In the event of the mother's death, provision may be made to increase the orphan's pension ; in the event of the mother's re-marriage, the children's pension would not normally be disturbed.

The relative contributions to a widows' and orphans' scheme are usually much smaller than to an ordinary pensions scheme, so that the whole cost may be borne by the employer. When members contribute, it is advisable to protect the scheme against the contingency of elderly employees leaving widows as a charge on the funds for a considerable period. This may be arranged by fixing additional contributions when the age of the husband exceeds that of his wife by several years. Alternatively, contributions may be payable at ordinary

rates and a reduced amount may be granted in respect of widows' pensions.

Single men or widowers without children may be allowed to join the scheme and assure an appropriate pension for a dependent relative, such as a widowed mother. Where there is no longer need for a member to continue his membership, withdrawal may be arranged on some agreed basis.

When major death benefits are provided in a scheme, only employees in good health are usually brought into it for these benefits. A medical examination may be imposed, or a waiting period may be fixed, during which death benefits are restricted, so that sub-normal lives are not attracted into the scheme by reason of the death benefit offered and the funds are protected. Major death benefits arising in wartime may be eliminated, so that the scheme will remain solvent, in spite of a sudden and normally unexpected increase in claims.

Normal retirement benefits and widows' annuities are complementary, for whereas longevity of members depreciates the pension fund it effects a corresponding saving in widows' annuities, and *vice versa*. Thus, a general fund has the double benefit of providing greater stability and of satisfying a wider human need, whilst in certain cases enjoying relief from taxation.

Pension Funds and Taxation

Taxation relief is provided under various sections of the Income Tax Act, 1952. A limited relief is available under section 219 in respect of pension contributions to life office schemes and under section 225 in respect of compulsory contributions for widows' and orphans' schemes. Relief in respect of National Insurance contributions is given under section 377. Full relief from taxation is provided under section 379 in respect of contributions to private pension schemes which have been approved by the Commissioners of Inland Revenue. On the other hand, measures designed against tax avoidance in respect of retirement benefit schemes are detailed in sections 386 to 391. The reliefs in respect of private pension schemes approved by the Commissioners of Inland Revenue and the avoidance provisions regarding retirement benefit schemes are reviewed below.

Approved Pensions Scheme. In respect of a private pension scheme which is approved by the Commissioners of Inland Revenue, both the employee's and the employer's ordinary annual contributions rank as expenses in their separate tax assessments—income tax, surtax and profits tax. Lump-sum contributions by employers in connection with past services are allowable as an expense for taxation purposes. The amount is usually spread forward over ten years or such lesser number of years ascertained as the quotient of the extraordinary contribution divided by the ordinary annual contribution. The interest income of the fund is free of tax, so that if it is taxed at source a refund will be made. This exemption from tax greatly accelerates the rate of accumulation. However, when stock exchange under-writings are arranged as part of the investment policy, profits earned from under-writing on stock which is not taken up are not exempt from tax.

In the employee's tax assessment, his contributions are deducted from his total salary, so that he receives relief at the highest rate of tax he would normally pay. On the other hand, the amount of earned income relief is restricted in its application to the net salary after deduction of pension contributions.

Strictly speaking, compulsory contributions by employees for dependent pensions qualify initially for life assurance relief and it is only the excess over £100 or one-sixth of the total income which is allowable as expenses, because of a requirement that relief in respect of life office schemes and approved pension schemes are mutually exclusive. In practice, however, the entire contribution is given expenses relief so long as the part relating to dependant's benefits does not exceed a quarter of the whole ; but this concession is inapplicable to separate funds. However, in a voluntary scheme, the rights must be legally secured to the employee, even if of a contingent nature. Discretionary payments which are unenforceable by the employee are not recognized for this purpose.

When an employee makes a contribution other than an ordinary annual contribution, no allowance can be made on this account for tax purposes ; but this may be overcome by increasing ordinary annual contributions instead of making an extraordinary contribution.

In view of the relief on contributions and interest accruals, pensions received from the fund by persons resident in the United Kingdom are taxable as earned income under the system of P.A.Y.E., unless the income escapes taxation through the application of the usual personal relief and allowances. Pensions paid to members who are not resident in the United Kingdom are taxable by deduction at the standard rate, unless the pensioner resides abroad and if at least three-quarters of his total service under the employer was rendered abroad in such circumstances that his earnings were not taxable.

Where, under the constitution of a scheme, repayment of contributions is made, with or without interest, to an employee during his lifetime, or where a lump-sum is paid instead, or in commutation, of an annuity, the trustees must pay tax at one-fourth of the standard rate on the net sum repaid, except in respect of an employee whose employment is carried on abroad. In practice, however, no tax is payable if at least three-fourths of the service was rendered abroad in circumstances that tax was not payable on remuneration. Also no such liability arises in respect of the refund of a deceased member's contributions. As the deduction is merely an amount equivalent to tax, the recipient cannot reclaim it if he is not liable to tax or is liable to tax at a lower rate and there is no power of deduction, when making the repayment, unless authorized by the constitution of the scheme. Whether or not the trustees pass on the tax liability to the recipient depends upon the terms of the trust deed, in which the trustees may be given discretionary powers. If the liability is passed on to the recipient, the quarter-rate of tax will be calculated on the actual net amount paid to the employee and not on the gross amount refunded. If the rules of the fund do not permit such a deduction to be made from refunds of contributions, the tax charge is met by the fund so that the employee

obtains a tax-free refund although he has already enjoyed full tax relief on his contributions to the fund. The Commissioners of Inland Revenue waive the requirement of tax on withdrawals from a scheme in cases where the funds withdrawn pass directly from fund to fund. Where, under a scheme, a pension is continued for a number of years after death, the payment is taxable in the hands of the recipient ; but, when a scheme provides that on death within, say, five years after retirement the balance of the five years shall be payable as a lump sum, no such liability to tax arises.

If any part of the contributions of the employer are refunded, with or without interest, the trustees of the fund are required to deduct income-tax at the standard rate on the refund and pay it over to the Revenue. Amounts so refunded do not form part of the income of the employer which is taxed at source.

The Commissioners of Inland Revenue have practically an absolute power to impose conditions before approving a scheme, and, once this is given, any amendment to the scheme requires their further approval. Certain conditions are prescribed; but the Commissioners have a discretionary power to modify some of them. These conditions are as follows :

- (a) the fund is *bona fide* established under irrevocable trusts in connection with some trade or undertaking carried on by a resident in the United Kingdom.
- (b) the fund has for its sole purpose the provision of annuities for persons employed in the trade or undertaking, on retirement at a specified age or on earlier incapacity, or after their death for their widows, children or dependants.
- (c) the employer contributes to the fund ;
- (d) the fund is recognized by the employer and employee, although it is not essential that the employees shall contribute to it.

However, the Commissioners may exercise their discretionary power :

- (1) notwithstanding that the rules of the fund provide for the return in certain contingencies of contributions paid to the fund ;
- (2) if the main purpose of the fund is the provision of annuities, notwithstanding that such provision is not its sole purpose or
- (3) notwithstanding that the trade or undertaking in connection with which the fund is established is carried on only partly in the United Kingdom and by a non-resident.

Revenue practice requires the fulfilment of various other requirements :

- (i) the fund must have other characteristics of a genuine super-annuation fund. However, a degree of freedom is allowed in fixing minimum pensions and also where pensionable service is less than forty years ;

- (ii) the fund must be open to all or a specific category of employees ; but not to controlling directors. Each employee's contribution must be limited to 15 per cent of his total remuneration and the fees as directors of full-time executive directors must be excluded.
- (iii) employees' contributions may not be refunded, with or without interest, except on the death of a member, or on withdrawal because of hardship or in other exceptional circumstances if re-entry is prohibited, or on the cessation of the employment without entitlement to an immediate or deferred annuity from the fund, or when a member who is a bachelor or a widower reaches normal retiring age after making compulsory contributions to a widows' fund. In all these cases, approval is restricted to that part of the fund which relates to the provision of pensions not exceeding £2,000 p.a. Employer's contributions are not returnable except as to an appropriate part of any actuarial surplus on a winding up of the fund ;
- (iv) a pension may not be assigned or commuted for a lump sum, except that commutation is permissible for pensions of not more than £39 p.a., or, exceptionally, in cases of serious ill-health, in which event medical evidence is required by the Inland Revenue authorities to the effect that the illness has affected the employee's expectation of life.
- (v) capital sum benefits may be granted on the death of a member only to the extent of the greater of the two following amounts :
 - (a) his actuarial interest in the fund, being the present worth on the basis of a normal expectation of life of the hypothetical benefits at normal retirement age, less that of future joint contributions until that age, or, in the case of a retired member, his actuarial interest at the date of his retirement as reduced by benefits since received and
 - (b) the total of the joint contributions with interest, but reduced by any pension benefits already received in the case of a member dying after retirement.
- (vi) where the provision of pensions is the main, but not the sole, purpose of a fund, approval is given to that part of the fund which relates to the provision of pensions, provided this can be ascertained on an actuarial basis and not more than one quarter of the aggregate value of the retirement benefits is payable as a lump sum. Contributions to the fund, apart from the ordinary annual contributions of the employer (which are normally allowed as trading expenses whether or not the fund is approved) and income from investments, are apportioned in order to ascertain the relative relief from income tax ;
- (vii) partial approval may be given to a fund which is established by a non-resident company which partially carries on business in the United Kingdom, as far as concerns employees there resident. If the fund is administered overseas, approval is subject to the availability of a representative in the United Kingdom to undertake the statutory responsibilities regarding

the fund. Overseas employees of a United Kingdom business can, of course, be members of an approved pension scheme in this country. Concessionally, employees normally situated in the United Kingdom who are seconded to an overseas subsidiary may also be included.

Retirement Benefit Schemes. The fiscal provisions in respect of retirement benefit schemes restrict the field of immunity from tax liability during employment in respect of retirement benefits provided by the employer. The general effect is to force any such scheme, apart from schemes specifically exempted, into a pattern acceptable to the Inland Revenue authorities, with the alternative of taxation of the employer's contributions as income in the hands of employees, whether or not the employer actually pays out the contributions in order to secure the benefits. If the contribution takes the form of an assurance premium, the employee may claim life assurance relief. If the employer does not make any current payments to secure future benefits for the employee, but merely contracts to make provision for him on retirement, or makes arrangements which gives employees a recognized expectation of a recognized benefit, although maybe subject to the exercise of the employer's discretion, a notional payment is assessable in the hands of the employee. However, as this provision is inapplicable when retirement benefits are paid *ex gratia* by the employer without any prior arrangement or obligation, any lump sum so paid does not attract tax on the part of the employee either on the benefit or on the notional contributions of the employer. Any monetary benefits afforded solely because of the death or disability of a person during his employment are also excluded. The provisions are also inapplicable where the employee is exempt from tax under Schedule E on his earnings because he is employed abroad. On the other hand, tax paid by an employee is refunded if some event occurs such as a winding up of the employer's business which prevents the benefits or any alternative benefits from becoming payable. It should be noted that no exemption is available under these provisions for the investment income of any relevant fund and employees cannot deduct any contributions which may be required of them from their income for taxation purposes.

The provisions are applicable to a scheme for an individual employee, or for all, or for classes of employees, of any employer being a body corporate or an incorporated society or other body, but do not extend to schemes in respect of which the employer is an individual or a partnership.

However, exceptions arise from the charging provisions :

- (a) if the scheme is a statutory pension scheme or is an approved pension scheme ;
- (b) if the scheme was effected with an insurance company before 6th April, 1947, unless it is mainly confined to directors or to employees earning more than £2,000 p.a.

- (c) if the scheme was in operation before 6th April, 1944, for the main purpose of providing an annuity or pension for life ;
- (d) if the scheme is an "excepted provident fund" or similar scheme, that is, to so much of any scheme or schemes as relates to persons earning £2,000 p.a. or less, under which the employer does not contribute altogether more than 10 per cent of the employee's remuneration or £100 per annum, whichever is the less.

The term "provident fund" is used to describe a trust fund established by an employer, to which both he and his employees make regular contributions. A separate account is kept for each employee (or maybe two accounts) to which is credited his own contribution and the relative part of his employer's contribution, together with interest. The amount to the credit of an employee's account may be withdrawn, usually when he leaves the employer's service. The employer's ordinary annual contributions, but not any extraordinary contributions, are deductible as expenses in ascertaining his profits for taxation purposes, but no tax relief is given to employees in respect of their contributions. The income of the fund from its investments is strictly taxable at the standard rate but some concessional relief is available where members are not generally liable to tax at the standard rate. Usually the employee is given only a contingent right to benefit from the employer's contribution, in which event he has no liability under Schedule E in respect of the employer's contributions and he is not taxable in so far as the fund is an excepted provident fund or if he is employed abroad. In exceptional cases where the employee has an unrestricted right to his share, the employer's contributions are taxable on him under Schedule E, but if his absolute right to receive his employer's contributions only coincides with the end of his service, or after a definite period of service, the contributions are taxable as part of his earnings at that time.

Benefits which are provided under two or more schemes are required to be aggregated for the purpose of (c) and (d) above. If an approved scheme or a scheme within category (b), (c) or (d) is amended, it is deemed to become a new scheme which requires approval for exemption, unless the amendments are approved by the Commissioners.

The Commissioners of Inland Revenue are required to approve any scheme which complies with the above over-riding conditions and the following additional conditions ; but they have a discretion in imposing these additional conditions. They may even withdraw their approval without any right of appeal. In any case, however, the main benefit of the scheme must be a pension for life to employees and/or their dependants. This excludes an annuity which can be commuted or assigned for a lump sum, as well as an annuity certain ; but a life annuity which is guaranteed for a minimum period is regarded as a life pension. The condition is also met by a pension for a widow or dependant for life, subject respectively to cessation on marriage or the attainment of a specified age.

The additional conditions which the Commissioners may require are :

- (i) that the pension for life will arise only on retirement at a specified age, or on earlier retirement through incapacity, or on death. Retirement with immediate benefits within ten years of normal retirement age is permitted. Early retirement, otherwise than on incapacity, more than ten years before normal retirement is also allowed, provided enjoyment of at least three-fourths of the benefits is deferred until normal retirement age, incapacity, or death and, except in the last-named event, will be taken as a non-assignable and non-commutable annuity. The provision of a reasonable dowry for a woman member who on marriage retires from the scheme is permitted ;
- (ii) the nature of the benefits is common to all members of the scheme, or to members of each class if there is more than one class of member, so that reasonable equality of treatment is assured.
- (iii) that the proportion between the value of annuities and pensions to the extent that they are non-commutable and the value of all other benefits afforded by the scheme compares reasonably with the values of such benefits respectively afforded by statutory pension schemes. Apparently, up to a quarter of the benefits under an approved scheme may be taken as a tax-free cash sum and the commutation of an annuity for a lump sum may be allowed by the rules in case of serious ill-health, or where the annuity or pension would not normally exceed £39 p.a.
- (iv) that the aggregate value of all benefits provided by the scheme for each employee compares reasonably with that provided in similar circumstances by statutory superannuation schemes. In making this comparison, benefits are assessed in pension terms, so that any non-life benefit is actuarially converted into a hypothetical life pension.

The Commissioners usually approve schemes which provide dependants' benefits in addition to the maximum benefit payable on retirement of the employee. If an employee dies in service, his widow's pension until re-marriage may be half the notional pension of the employee on the basis of current remuneration at normal retirement age, with additional benefits to children and other dependants according to merit. It is only in the case of lump-sum benefits on death during service of exceptional amount that approval is normally withheld. In particular, approval is usually given in cases of ordinary endowment assurance where the benefit is a lump sum equivalent to the actuarial value of the whole benefit otherwise payable on survival to normal retirement age.

- (v) that the pensions and annuities provided by the scheme are non-assignable either wholly or partly ;
- (vi) that no service of a person as a controlling director is taken into account for any part of the scheme unless the scheme is exempt under (b) or (c) as above mentioned. A controlling

director is a member of the board which controls the company concerned and who owns or can control more than 5 per cent of the ordinary share capital. Thus, whole-time service directors may be included in a scheme, as well as those whose time is divided among several companies within the same group. Part-time directors may also be included.

Works Sickness and Benevolent Funds

The employer has an interest in ensuring that employees who are temporarily unable to work by reason of sickness or other misfortune should be as far as practicable free from financial worry during their period of incapacity, provided that a scheme is instituted which does not pay an employee to be "ill".

The scheme may be contributory or non-contributory on the part of the employee, although it is suggested that a contributory scheme is more likely to be a basis for mutual confidence. Administrative costs are relatively slight, as contributions may be collected almost automatically through payroll deductions, and facilities usually exist for day-to-day supervision of claimants and distribution of benefits by welfare personnel.

In assessing the benefits to be provided, two considerations should be borne in mind : firstly, that such periods are usually abnormally expensive to the person incapacitated ; and secondly, that the total income obtained should not encourage malingering. The overall requirement is, of course, that the fund should be actuarially sound. Accordingly, the contributions made by employer and employee should be assessed on the basis of past experience. In general, the average time lost from industry by reason of sickness and disablement is about two and a half weeks a year. If, as is desirable, the first three days of absence are at the expense of the employee, the average period for which calls are made on the fund is about two working weeks ; but the cost of benefits is reduced to a greater degree. If the scale of benefit is designed on a reducing basis, according to stated periods of absence from work, semi-permanent calls on the fund are avoided. There is need to build up a reserve against abnormal hazards, such as epidemics arising from time to time, unless the employer guarantees the solvency of the fund.

The attraction of the scheme, particularly to the younger and healthier members, may be increased by making provision for an annual refund of contributions not required, in proportion to the net contributions (actual contributions less benefits) of each member. Members leaving the fund during the year upon changing their employment could receive a refund based on the previous year's experience of the fund. The whole scheme is usually placed under the joint management of representatives of employer and employees ; employee representation in this sphere undoubtedly safeguards the fund against imposition by malingerers.

PART IV

FINANCIAL STRUCTURE

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(Note : References made to “ the Act ” relate to the Companies Act, 1948, unless the context implies otherwise.)

CHAPTER 22

INTRODUCTION

MANY important factors require consideration in planning an industrial organization, such as the acquisition of suitable premises and their equipment, the establishment of an efficient management team, the availability of labour and materials, power supplies and transport facilities, the need to provide for extensions and so on, and the over-riding need to ensure the profitable use of available financial facilities.

In planning the financial structure, estimates are required of the initial and progressive requirements for fixed and working capital. Fixed capital will be represented by investment in buildings, plant, machinery, and the like, whereas the amount of working capital will depend on the volume of turnover proposed, which in turn will be controlled by man-power availability, material-flow and stock requirements and terms of trade. These estimates of fixed and working capital will be conditioned by the estimated market potential, and the proportion of business which the organization may reasonably and with an adequate safety margin be expected to obtain over a period, either by competitive trading with existing firms, both at home or abroad, or by widening the effective market through intensive advertising. Even with established firms, adequate market research is the first stage towards any considerable expansion of activities in order to explore and evaluate marketing prospects.

The volume of activity is limited on the financial side by fixed capital investment and availability of working capital. The relative amounts required for fixed and working capital will depend on the nature of the enterprise, with the realization that these must be maintained in proper relation to one another if resources are to be economically employed. The total amount of capital must be sufficient yet no more than is reasonably required for real needs, because the reputation and financial standing of a company may suffer through over- or under-capitalization. Over-capitalization involving a surplus of funds reduces the percentage yield on total capital. Indeed, dividends may be negligible if profits are relatively small, although there may be plenty of cash in the business. On the other hand, under-capitalization restricts the volume of activity and leads to plant redundancy, with failure to cover fixed overheads. Lack of profit delays payment of creditors with further restriction arising as suppliers reduce their credit facilities and eventually their supplies, so that waiting time arises in the factory, the flow of production is upset and output is further reduced. Inability to satisfy customers' requirements, or to grant reasonable credit, may result in further deterioration and a gradual drift into insolvency.

In assessing working capital requirements, consideration should be

given to peak seasonal needs, because difficulties will arise if an average is taken where requirements of working capital are subject to undue fluctuations. Even with businesses of equivalent turnover, working capital will vary considerably where one firm has simple and efficiently operated systems of stock, production and credit control, and the other is lacking in this respect ; for unbalanced stocks and work-in-progress and lack of credit control are reflected in the total amount of working capital which is to some extent "frozen." Lack of attention to efficient methods of control may well entail more capital being tied up in stocks than in fixed capital, thus limiting healthy expansion of activity. It is, unfortunately, a state all too common in industry to find idle capital investment in the form of unnecessary and out-of-balance stocks. Dilatory methods of account rendering and credit control also require the employment of extra funds. Although credit received from suppliers assists the working capital position, extended credit facilities should not be regarded as a normal method of financing businesses, notwithstanding that some large companies demand relatively favourable credit terms which they do not in turn afford to their customers.

Having calculated the capital requirements of the project, it is necessary to estimate the probable return in the form of profit in order to judge whether the capital outlay proposed will be justified. A good margin of safety is required, unless the risk is to be purely speculative. The need to provide an adequate safety-margin in estimates of capital requirements and earning capacity can hardly be over-emphasized, even in cases where estimates are provided from professional and technical sources, as there is a general tendency to optimistic forecasts being made in these directions in the case of new enterprises involving relatively high capital expenditure. When the venture is something entirely new, the need to make adequate provision in this respect is of paramount importance. Of course, one should normally take a reasonably long view of the problem and for this purpose prepare a budget showing the estimated secular trend of capital to be employed, gross earnings and net profits.

If the proposal is attractive the need will arise to consider the provision of finance adequate for the success of the project. Apart from the merit of the proposal itself, the problem of financing will differ according to the status of the "entrepreneur". Clearly, an established company with a satisfactory record of progress will be better placed than if the proposal is to organize an entirely new business. Likewise, a public company, other things being equal, will be better circumstanced than a private company or a private trader, by reason of the wider market enjoyed by its shares.

The established company has also to meet the recurrent problem of financing normal expansion and development, either from its own resources by way of retained profits, by borrowings temporary or permanent, or by issues of capital.

The precise method of financing adopted will depend on the circumstances of the case ; the financial status of the company, the purpose of its requirements and the state of the money market, with an over-

riding regard to the requirements of Treasury control. The new enterprise may necessarily have to cover its needs for permanent capital by an issue of ordinary shares, perhaps, initially, through their subscription by other companies in sponsoring a joint-venture in a new field of activity. On the other hand, the well-established company which enjoys a high reputation in financial circles may be able to obtain additional capital more economically by making an issue of unsecured notes or convertible loan stock or by a rights issue of shares to its own members. Many arrangements are possible as outlined in the following pages in order to provide permanent or temporary finance from outside sources or to obtain funds from existing shareholders.

CHAPTER 23

PERMANENT CAPITAL

THE nominal capital of a company is the amount of share capital stated in the Memorandum of Association, together with any additional amount which has been authorized in accordance with the Act. The amount of nominal capital merely limits the power of the company to issue shares and does not at any time necessarily represent cash or other assets held by the company. The term "nominal capital" does not include borrowed money, although this is sometimes referred to as loan capital.

That part of the nominal capital which has not been allotted or agreed to be taken by any person is "unissued" capital. Capital "issued" usually consists of shares "partly-paid" or "paid-up" according to the extent to which contributions have been made to the nominal value of each share by persons becoming members of the company. The Act limits the liability of each shareholder to the amount unpaid on each share held by him. Apart from issues for cash, shares may be issued wholly or partly for consideration other than cash, whether the money's worth agreed for the shares is extravagant or not, provided the statutory requirements for registration of a contract in writing or particulars relating to the shares and a return of allotment are satisfied.

The amount of a company's share capital and the number and fixed amount of its shares must be stated in its Memorandum and, until all the issued shares in the company or in a particular class are fully paid up and rank equally for all purposes, each share must be distinguished by a separate number. Although the fixed amount of a share must be a monetary amount, it is not necessary for each share to be of the same amount, but these amounts when determined can be altered only in the manner provided by the Act. When the Articles so authorize, a company may make arrangements on a share issue for differences between shareholders in the amounts and times of payment of calls on their shares, or accept from any member unpaid calls on his shareholding, although no part of that amount has been called-up, or pay dividends *pro rata* to the amounts paid up on each share where a larger amount is paid on some shares than on others. A company may also by special resolution arrange that any uncalled share capital shall be reserved for call only in the event of the company being wound up. As reserve capital is thus placed outside the control of directors, it cannot be mortgaged or charged and thus may serve to enhance the company's financial stability.

Sometimes the Articles of a private company require a member who desires to transfer his shares to notify the board of his intention to do so in the first instance, in order that the board can give other shareholders of the company an opportunity to acquire the shares at a price fixed by agreement, valuation, or otherwise, in accordance with the

Articles. The other members of the company who thus have the first right of acquisition are said to be given a right of pre-emption which compels the holder to transfer the shares to the acceptors, subject to the proviso that any shares which are not so accepted may be transferred by the holder at the price stated, or at any higher price to third parties approved by the board. Similar provisions often apply to the shares of a deceased member in a private company. It is important in such an event to ascertain when and how the right of pre-emption is exercisable ; for example, it was decided in one case that the proper construction of the Articles gave the existing members and directors only the prior right of purchase when a transfer notice was served upon the company by a member in connection with a voluntary transfer of shares. Hence, the executors who took the shares by transmission and who applied for registration in their capacity as personal representatives were not affected by this requirement. Moreover, as the right of the directors to refuse registration could be exercised by a formal resolution only, upon which the board had in this case failed to agree, the right of refusal remained unexercised and the executors were entitled to registration.

Where the number of shareholders falls below the legal minimum of two in a private company, or seven in a public company, and the company continues in business for more than six months afterwards, members after this period who are so cognizant are severally liable for the whole of the debts of the company which are subsequently contracted. Members holding shares in a fiduciary capacity are included for this purpose, but not so the trustee of a bankrupt member, or the personal representatives of a deceased member.

An industrial company cannot lawfully give any form of assistance for the purchase of its own shares or those of its holding company, unless fully paid shares are being purchased to be held for the benefit of the company's employees, including employee-directors, or except by way of loan made to *bona fide* employees other than directors, to purchase fully-paid shares for their beneficial ownership. The aggregate amount of any outstanding loans so made has to be disclosed in the balance sheet. Moreover, particulars of any charge on the assets of the company to secure the liabilities of any other person, including where possible the amount secured, must be stated either by way of note or in a statement or note attached to the balance sheet.

Capital is divided not only into shares of different amounts, but also into shares of various classes having different rights attached, for the law does not require that equal rights and privileges attach to all shares. Special rights conferred on a class of members by the Memorandum of Association are unalterable except on a reduction of capital or a re-organization of capital under a scheme of arrangement approved by the court, unless the Memorandum whilst defining the rights of the various classes permits their modification in accordance with regulations contained in the Articles. Where share rights are defined only by the Articles of the company without any over-riding provisions in the Memorandum, a special resolution is required before any modification can be made.

Ordinary Shares

Although the whole of the fixed and working capital of a company need not be covered by an issue of shares, general agreement exists that the amount of fixed capital should be provided by permanent share capital, and that this should, as far as practicable, take the form of risk-bearing capital, that is, ordinary shares. In fact, the greater part of a company's share capital usually consists of ordinary shares, ranking after any preference shares issued according to the rights given to these shares by the constitution of the company.

Ordinary shares are issued with a fixed nominal value, which, according to the varying fortunes of the company, may be represented by net assets of varying value. Thus the real value of an ordinary share is represented by an appropriate part of the net worth of the company. Incidentally, shares may have an altogether different value on the Stock Exchange, where, although earnings, dividends and asset values are relevant, the main criterion nowadays is simply supply and demand, with yield on present or anticipated dividends the most relevant factor, although the intrinsic worth of a share is also important. Shares with a free market usually have a better market status and a lower yield than those which have only a restricted market. Ordinary shares are usually entitled to the whole of the profits after payment of preferential dividends, and are generally entitled to the whole of the assets remaining on a winding-up after payment of creditors and satisfaction of the amounts contributed by preference shareholders. There may be various priorities of ordinary shares just as there are priorities of preference shares. Sometimes ordinary shares are issued subject to the rights of deferred shareholders.

Deferred or founders' shares are frequently issued in payment to the vendors of a business which is taken over by a company, or to promoters in consideration for services rendered in the formation of a company. Deferred shareholders may be entitled to all the profits left after payment of prior dividends of a stated amount and to the whole of the surplus assets on a winding-up. They are specially valuable when they carry sufficient voting rights to control the company. The existence of deferred as well as ordinary shares may cause conflict in the creation of reserves, for sums placed to reserve are likely to be derived initially from the funds available for deferred shareholders and established funds are likely to provide cover mainly for ordinary shareholders by strengthening their prospective dividend position. Except in certain defined cases, the Act requires that any prospectus issued must state the number of founders' or management or deferred shares, if any, and their rights, including voting rights and interest in the property and profits of the company.

Preference Shares

Preference shares may carry all or any of the following rights : a right of preferential treatment as to dividends and/or capital ; a right of accumulation of dividends ; a right of participation in profits and/or capital. Their rights are generally defined in the terms of issue.

If the Memorandum does not provide for preferential rights being attached to any shares, and as there is no implication that rights shall attach equally to all shares, the company may by provisions in its Articles of Association attach preferential rights to any of its shares. Where the Memorandum simply authorizes the issue of preference shares as part of the original capital of the company, the exercise of that power is regulated by the Articles.

The preference shareholder has a prior claim to a dividend before the ordinary shareholder, generally by way of a fixed dividend, which may be either cumulative or non-cumulative. Terms of issue which are silent on this point are construed as conferring on preference shares the right to cumulative dividends. Thus, preference shares are presumed to be cumulative and ambiguity in the wording of the Articles of Association is not enough to make them non-cumulative. The shares are non-cumulative only when their terms of issue so state. In addition to a right of accumulation as to dividends, preference shares may, in addition, have the right, if so given by their terms of issue, to receive an additional or participating dividend, although participating preference shares are not popular. Preference shareholders do not enjoy the right to demand payment of interest whether or not the company has earned profits and to secure any charge on the company's assets in case of default. Unlike the debenture-holder, the preference shareholder has no right to sue for fulfilment of the contract to pay interest.

The preferential right of the preference shareholder is in many cases confined to dividends and does not extend to repayment of the capital amount of the shares on a winding-up of the company in priority to other shareholders. Preference rights as to capital are sometimes attached to preference shares, so that, in the event of a winding-up of the company, the capital paid up on the shares is repayable before the ordinary shareholders receive anything. If the Articles set out the rights attaching to any class of shares to participate in the property of the company in a liquidation, *prima facie* the right so stated is exhaustive. Therefore, preference shareholders are not entitled to participate in the distribution of surplus assets after all the contributed capital has been repaid, unless so entitled by the constitution of the company.

In a case in which it was agreed that under the terms of a resolution creating preference shares, the shares should rank in a winding-up as to both dividend and capital in priority to other shares, a question arose as to whether arrears of preference dividend could be paid in a winding-up whether or not profits were available to pay the dividend at the commencement of the liquidation. Although it is a truism that dividends are payable out of profits, it was held that the only fund the distribution of which was to be considered was that which comprised the surplus assets. Therefore, the whole of the divisible fund, subject to the outstanding costs of the liquidation, was, under the circumstances, distributable amongst the holders of the preference shares, for the arrears of dividend exceeded the surplus.

Preference shares are often issued on terms which give minimum

voting rights in the company ; for example, that voting rights will attach to the relative shareholders only if and so long as the dividend remains unpaid for a longer period than six months, and any right to participate in any surplus arising on a reconstruction or liquidation of the company is often excluded. The voting rights attached to preference shares are, however, an important factor in their marketability, particularly to the institutional investor, for unless adequate voting rights exist, the preference shareholder will be unable to protect his interests when they are likely to be prejudiced by the company increasing its borrowing powers, amalgamating with another company or paying off its preference capital in a reconstruction which involves a winding up. As Lord Simonds, in dealing with *Scottish Insurance Corporation Ltd. v. Wilson and Clyde Coal Co. Ltd.*, [1949] 1 All E. R. 1078, in the House of Lords, said : “ Whether a man lends money to a company at 7 per cent or subscribes for its shares carrying a cumulative preferential dividend at that rate, I do not think that he can complain of unfairness if the company, being in a position lawfully to do so, proposes to pay him off.” On the other hand, the commercial view is that preference shareholdings should be of a permanent nature and co-terminous with equity shareholdings. In order to facilitate the raising of preference capital, Articles of Association should be drawn to safeguard the rights of preference shareholders, *e.g.*, by providing for repayment at a premium in a liquidation and by extending the list of circumstances in which holders should be consulted.

Preference shares may be attractive to the institutional investor in comparison with “ dated ” debentures, because the latter give rise to reinvestment problems when paid off and do not permit the ready establishment of an investment portfolio suitably spaced to suit redemption dates. The fact that dividends from preference shares rank for profits tax purposes as franked investment income to the recipient, whereas interest received from debentures does not, is also in their favour. On the other hand, from the point of view of the paying company, debenture interest does not attract profits tax, whereas preference dividends are chargeable at the full rate.

Although a company cannot generally repay capital subscribed by shareholders without the sanction of the court, a company may, subject to its Articles, issue redeemable preference shares, on condition that the shares when redeemed are fully paid and are redeemed either from profits otherwise available for dividend or from the proceeds of a fresh issue of shares made for the purpose of the redemption. Moreover, any redemption premium must be paid before redemption from profits or from share premium account, and, where shares are redeemed otherwise than from the proceeds of a fresh issue, a sum equal to their nominal value must be transferred from profits which would have otherwise been available for dividend to a capital redemption reserve fund. This fund may be used to pay up unissued shares to be issued as fully-paid bonus shares, in which event the fund merges, in effect, with the issued share capital. Profits used for share redemption cannot, of course, be used to pay dividends or for any other revenue purpose. A redemption of preference shares no longer amounts

to a reduction of capital, so that no extra stamp duty is payable on the new issue, provided the shares are redeemed within a month after the issue of the new shares. A company may redeem shares partly out of a fresh issue and partly from profits, with a capital redemption reserve fund to cover the issue from profits. However, existing shares cannot be converted into redeemable preference shares. Notice of shares redeemed must be given to the Registrar of Companies, and the balance sheet must specify any part of the issued capital of the company that consists of such shares and the earliest date on which the company has power to redeem them.

Capital Gearing and Dividend Cover

The ratio in value of preference shares to ordinary shares determines the capital gearing of a company. When profits rise, a highly geared capital benefits equity shareholders, whereas, when profits fall, a highly geared capital gives little security to preference shareholders, as shown by the following example, which assumes that all profits are distributed and disregards the incidence of profits tax.

<i>Capital</i>	<i>Highly Geared</i>		<i>Low Geared</i>	
	£		£	
5% preference shares	100,000		20,000	
Ordinary shares	20,000		100,000	
Total	120,000		120,000	
<hr/>				
<i>Low Profits</i>	£	<i>Yield</i>	£	<i>Yield</i>
Preference	2,500	2½%	1,000	5%
Ordinary	Nil	Nil	1,500	1½%
Total	2,500		2,500	
<hr/>				
<i>High Profits</i>	£	<i>Yield</i>	£	<i>Yield</i>
Preference	5,000	5%	1,000	5%
Ordinary	15,000	75%	19,000	19%
Total	20,000		20,000	

However, in assessing the true effect of capital gearing on ordinary shareholdings, the reserve gearing (*i.e.*, the ratio of total capital employed, including reserves, less preference interests, to the amount of ordinary capital) should be considered, where the true equity includes substantial reserves.

Dividend cover is a measure of the extent to which the preference dividend is covered by the profits of the company. To the preference shareholder, however, the essential criterion is stability of reasonable dividend cover—he generally prefers to have dividends covered, say, thrice with little variation, than sixfold on the average with excessive fluctuations. When there is more than one class of preference shares, a more acceptable measure is given by the “average dividend cover”, although a preferable arrangement is to refer to the “priority percentage” of each class of preference capital and of any debenture or other loan. For if the profit is stated without regard to the interest

requirements of loan-holders, the figures disclosed may well prove illusory if profits are suddenly reduced. Assume the following figures :

Debenture interest	4%	£100,000
First preference shares	5%	50,000
Second preference shares	5%	10,000
Profit : subject to loan interest		£12,500
<i>Dividend Cover</i>		
First preference shares	Gross 5 times	Nett 3·4 times
Second preference shares	25 times	17 times
<i>Average Dividend Cover</i>	4·2 times	2·8 times
<i>Priority Percentage</i>		
Dividends absorbed by :	%	
Debentures	0-32	
First preference	32-52	
Second preference	52-56	

The priority percentage in this case shows that profits can fall to 56 per cent of their present level before touching the second preference dividend but only another 4 per cent before affecting the first preference dividend.

Issue of Shares at a Discount

A company can with the sanction of the court issue at a discount shares of a class already issued. Thus, a company having shares quoted below par value on the Stock Exchange may make further issues in cases which, in the absence of this provision, would be void. Their issue may be made after the company has been at least a year in business by the passing of an ordinary resolution in general meeting specifying the maximum rate of discount. The right is, however, little used, having regard to the need for an application to the court and to the fact that the same result may be achieved more simply ; for example, by issuing shares of a certain nominal value carrying the same rights as shares of higher nominal value. Although debentures may be lawfully issued at a discount, the sanction of the court is necessary for any scheme for their exchange into fully-paid shares of the same nominal amount, as such an arrangement would result in the issue of shares at a discount.

The financial records merely require the amount of the discount to be debited to a " share discount account " and credited to the shareholders' accounts. The share discount account will be separately shown as an intangible or fictitious asset in the balance sheet, so that the share capital account remains at par and is not affected. The share discount account has to be shown in the balance sheet in so far as the amount is not written off against capital gains, retained profits or otherwise. Disclosure of share discounts is also required in any relative prospectus.

Issue of Shares at a Premium

Shares are issued at a premium when their issue price exceeds their nominal value. No statutory or other restrictions apply to their issue.

Whether the shares are issued for cash or other consideration, any premium proceeds must be recorded in a "share premium account", shown usually after the amount of issued share capital in the balance sheet. The aggregate of the share premiums and the par value of the shares is matched on the opposite side of the balance sheet by the amount of cash or other assets received as consideration for issue of the relative shares. The law relating to reduction of share capital applies to the premiums except as mentioned below as if they were paid-up share capital. Thus, share premiums become in effect part of the paid-up capital, although in excess of the par value of shares issued.

The share premium account must not be used to distribute a dividend, but it may be applied in paying up unissued shares to be issued to members as fully-paid bonus shares (preferably referred to as "a capitalization issue," or "scrip issue") or in writing off preliminary expenses, or the expenses, commissions or discounts allowed relative to a share or debenture issue, or in providing for premiums payable on the redemption of redeemable preference shares or debentures. The creation of such additional shares is indicated by transfer of their nominal amount from "share premium account" to "issued share capital account" in the balance sheet.

Alteration of Share Capital

Where the rights of different classes of shareholders are fixed by the Articles of Association and not by the Memorandum of Association, they may be altered by special resolution.

A company may, if authorized by its Articles, by power exercised in general meeting, alter its Memorandum as regards any part of its share capital and so issue additional shares, or alter the denomination of its shares by their consolidation or division into shares of different amounts, or convert fully-paid shares into stock, or *vice versa*, or cancel unissued shares which have not been taken or agreed to be taken by any person and thus reduce its nominal capital without the sanction of the court. Notice of the alteration must be given in each case to the Registrar of Companies, within fifteen days where an increase of capital is involved and within one month in other cases. Alterations in the Memorandum or Articles to increase the liability of members to contribute to share capital are not binding on them without their consent. When shares are divided into shares of smaller amount, as when each £1 share is divided into four 5s. shares in order to facilitate Stock Exchange dealings, care must be taken to ensure that the ratio of the paid to the unpaid portion of partly-paid shares is unaffected, and that the voting rights of a particular class of shares are not varied without the authority of the Articles.

In all these cases it is necessary to ensure the absence from the Memorandum of any provision which restricts the company's freedom of action. As a safeguard to minority interests, the Act provides that, if in pursuance of a provision in the company's constitution, the rights of any class of shares are varied or abrogated, the holders of not less than 15 per cent of the shares who did not consent or vote in favour of the relative resolution may apply to the court to have it

cancelled, and in this case the resolution is ineffective until confirmed by the court. The court has final power to allow or disallow the variation or abrogation.

Shares normally carry a distinctive number, which may be dispensed with if they are fully paid, and rank equally with other shares of the same class. The issue of stock merely signifies that the company has recognized the shares as fully paid, and that they may henceforth be assigned in fragments without regard to their original nominal amount. In the financial accounts, conversion of shares into stock simply means replacing the term "issued share capital" by the term "issued stock". Stock may be guaranteed, preferred or deferred and, in any case, either registered or unregistered. Subject to exchange control regulations, stock warrants may be issued to holders of unregistered stock which are transferable on delivery; whereas, with registered stock, a register of holders is kept and stock certificates are issued and transferred in the same way as shares, except for fractional dealings if so provided. Thus, stock may be divided into any fractional amounts and the divisions need not be numbered. The nominal price of stock is related to its denomination, and it carries voting rights as in the case of the original shares.

Reduction of Share Capital

As the creditors of a company are invited to deal with it on the basis that it has received from its members the paid-up capital which appears on file with the Registrar of Companies, and that registered shareholders are responsible for payment of any unpaid calls on their shares, the general principle is that the capital of a company cannot be reduced without consent of the court where the rights of creditors are concerned. In certain cases, however, there may be a reduction which is not technically so regarded, as when a company by resolution of a general meeting cancels shares which have not been issued or agreed to be issued, or where shares are forfeited for non-payment of calls in accordance with the Articles. Apparently, too, a company may accept a surrender of shares as a short-cut to their forfeiture.

When capital is lost as the result of unsuccessful trading or otherwise, or when a company has more capital than it can properly employ, it may be desirable to reduce the amount of its registered capital. Subject to confirmation by the court and if authorized by its Articles, a company may by special resolution reduce its capital in any way and alter its Memorandum accordingly. No limitations are imposed in this respect and without prejudice to the generality of the company's discretion, a company may partly or wholly reduce any liability in respect of unpaid share capital, and cancel any paid-up share capital which is lost or unrepresented by available assets, or pay off any paid-up share capital which is in excess of its needs. Reserve capital may be cancelled in this way. The court has power to confirm any kind of reduction, notwithstanding that it may alter the legal rights of different classes of shareholders. Generally, a reduction of capital is preferably made on an all-round basis, but the reduction need not be spread equally or rateably over all the shares of the company, provided the arrangement is not unfair or inequitable.

The procedure laid down in the Act is simple in cases where the reduction does not involve either the reduction of liability or the payment off of any paid-up capital, as there is usually no enquiry as to creditors. In other cases, however, the procedure is an elaborate one, for provision is needed to cover creditors' objections, so that either their consent is obtained or their debt or claim is satisfied or secured. These requirements are dispensed with only in special cases and the company may be put on terms. In either case, if the application is granted, the company may be required to give publicity to the reduction and add the words "and reduced" to its name for a specified period.

The resolution takes effect when the minute, as approved by the court, is filed by the Registrar of Companies. Publication is essential of the notice of registration, although it is only essential to advertise the registration without setting out the complete minute. Upon registration the minute is deemed to be substituted for the corresponding part of the Memorandum of the company, and is valid and alterable as if it had been originally contained in the Memorandum. A past or present member of the company is not liable in respect of any share to any call or contribution exceeding any difference between the amount of the shares as fixed by the minute and the amount paid, or any reduced amount deemed to have been paid on the share. The only exception is where provision is made in certain cases to protect the interests of creditors who, through a misunderstanding, were not entered in the list of creditors entitled to object to the scheme.

Shares of No-Par Value

The Gedge Committee, in their majority report of March, 1954, expressed the view that adoption of the concept of shares of no-par value would remove a suggestion of value which, in respect of shares of nominal value, is inherently misleading and, indeed, untrue, in so far as a fixed nominal value is attached to an ordinary share of fluctuating market value and changing asset backing. They affirmed that no essential difference exists between the two types of share, both of which represent a fractional part of the equity, but pointed out that the N.P.V. system views a share in the true sense of the word as simply representing a share of the equity, for the true capital of a company is the amount of capital employed and not the amount of paid-up capital. In urging managements to extend the practice of giving their workers a true picture of the financial position of their company, showing clearly the relationship of profits and dividends to capital employed, the point was made that the concept of N.P.V. shares, which precludes the practice of expressing a dividend as a percentage of nominal capital, would assist in removing misunderstanding and misrepresentation. In their opinion, adoption of the concept would also avoid shareholders being misled as to profits and investment yield and would facilitate the raising of capital, since no restriction need arise on the price of issue of shares. Indeed, considerations of premium and discount have no place in a true system of no-par value, because there is no parity. However, a trades union member of the committee

issued a minority report as he was unable to accept the recommendation of the majority for the Companies Act, 1948, to be amended to permit the issue of shares of no-par value or to regard their proposals as being a logical development of company law and practice. He felt that adoption of the N.P.V. system would have a retrogressive effect on industrial relations and would bewilder shareholders.

The majority report recommended that the issue of ordinary shares of no-par value should be permitted, either as fully-paid or, subject to adequate disclosure, as partly-paid, on the part of all companies, public or private, having a share capital, but that the practice should not extend to shares having either a fixed dividend element or a fixed element of repayment of capital. The balance of opinion inclined to the view that shares which carry a fixed dividend necessarily related to the sum on which it is paid, or which involve repayment of a fixed sum in a winding-up, are not in keeping with the concept of no-par value. In the interests of simplicity, too, the view was taken that a company should have its ordinary capital either entirely in shares of nominal value or wholly in shares of no-par value.

In order to safeguard the public interest, the Committee recommended that the total proceeds of an issue, whether of ordinary or preference shares and whether for cash or other consideration, should be credited to a stated capital account, which should not be distributable, but against which it should be permissible to debit preliminary expenses, commission and expenses of issue, provided a note of any such charge is made in the balance sheets for two years after being first so debited. Except that the stated capital of a company having shares of no-par value would supersede the paid-up capital and share premium account of a company having shares of nominal value, no difference should arise between the accounts of a company under either system and the introduction of shares of no-par value should not cause additional accounting complications.

In the event of a company converting its ordinary shares of nominal value into shares of no-par value, the report suggested that the whole of the paid-up capital, ordinary and preference together with its share premium account, should be transferred to stated capital account, whereas, in the reverse process, the stated capital should be taken to the credit of paid-up share capital. The report also recommended that companies should be permitted by special resolution to convert ordinary shares of nominal value, whether fully-paid or not, into shares of no-par value, or to convert fully-paid (but not partly-paid) shares of no-par value into shares of nominal value; but, if more than one class of shareholder is concerned, the conversion of shares of nominal value into shares of no-par value should be subject to the approval of an extraordinary resolution of each class of shareholder.

A further recommendation was made that the authority of a special resolution should be required in order to "freeze" reserves and other sums by transferring them to stated capital account, or to "split" shares. Splitting shares of no-par value is, of course, equivalent to dividing shares of nominal value, except that a nominal value does not exist to which dividends on the resultant shares may be related. It

increases the number of fully-paid shares without any consequent effect on the amount of stated capital. In the case of shares of nominal value, their number may be increased by sub-dividing them into shares of smaller nominal value. Alternatively, their number may be increased by making a scrip issue as the result of capitalizing profits and reserves, but at the expense of "freezing" amounts otherwise distributable as dividends. In this event, however, the percentage rate of dividend is reduced, provided the aggregate amount distributed is unchanged. The question of a percentage rate of dividend does not arise with shares of no-par value because of the absence of a nominal value, and there is no need to capitalize profits and reserves and so increase the amount of stated capital in order to increase the number of fully-paid shares in issue. The report recognized that this may remove an existing incentive to capitalize profits and reserves, but stated that the course of action in each case could properly be left to the discretion of the directors concerned in accordance with the interests of the company, but without being under any obligation to do so in the event of a share "split".

Changes were also recommended in respect of registration fees and capital duty imposed on companies having shares of either nominal value or of no-par value, in the event of the N.P.V. system being adopted. The report recommended that a capital duty should be charged on the total price or consideration, so that any increase of either issued capital or stated capital arising from the transfer of profits or reserves should attract further capital duty without discrimination as between companies under either system. It was suggested that no duty should be charged on conversion from one system to the other and credit should be given where a company has unissued capital on which duty has been paid and subsequent issues are made. The recommendation was also made that in the event of a change in the ownership of a company, as the result of amalgamation or reconstruction, revenue reserves which existed before the event should not be "frozen" as capital reserves, provided no substantial change in the ownership of the company is involved, whether the shares of the company are of nominal value or of no-par value.

CHAPTER 24

BORROWED FUNDS

ALTHOUGH trading companies have implied power to borrow money to a reasonable amount for the purpose of their business and to give security, companies usually take express power in their Memorandum to borrow money and to provide security for loans received. The Act does not limit the amount which may be borrowed. The Articles of Association usually define the manner in which and the extent to which this borrowing power may be used. For instance, Table A, where applicable, prohibits the directors from borrowing on behalf of the company, other than by means of fluctuating bank overdrafts, in excess of an amount equal to that of the issued capital, except with the sanction of a general meeting of the company. Incidentally, the rules of the Stock Exchange do not permit that body to grant a quotation to a company unless the borrowing powers of directors are limited by the Articles to a reasonable amount.

Where the Memorandum of Association does not contain power to borrow or gives a power to borrow which is too restricted, or the company, being a trading company, wants a power more clearly defined than one connoted by the word "reasonable", the company may by special resolution alter its Memorandum in order to provide the necessary powers on the basis that the alteration is required to enable the company to carry on its business more economically or more efficiently. If, however, application is made by dissentients in accordance with the Act to cancel the alteration, it will be effective only so far as confirmed by the court and subject to any conditions imposed.

If the directors are prohibited by the Articles from borrowing more than a stated amount except with the sanction of the shareholders, an ordinary resolution of the shareholders authorizing the borrowing is sufficient, for permission to borrow beyond the amount stated is granted subject to such sanction. In other cases where the Articles restrict the directors from borrowing more than a fixed amount and the company seeks a higher limit, it must pass a special resolution altering the Articles to give the directors this power.

A company which has power to borrow enjoys an implied authority to charge its assets as security, unless the power to do so is excluded by its Memorandum or Articles. Generally, an industrial company authorized by its constitution to borrow may, in the absence of any express provision, generally charge all or any of its property, but in no circumstances may a charge be created over reserve liability, being any part of its share capital which a company by special resolution decides shall be called up only in the event of the company being wound up. Subject to this statutory sanction which prohibits the creation of a charge over reserve liability, uncalled capital may be charged provided there is power to do so in the Memorandum, or

in the Articles, whether original or amended, and nothing to the contrary in the Memorandum. A prohibition may be implied if the Memorandum, whilst authorizing certain charges, has omitted to include a charge on authorized capital. As uncalled capital is only property potentially, a power to borrow on the property of the company does not authorize a charge on its uncalled capital, but the position is different where a power exists to mortgage "the company's property and rights".

A public company cannot exercise its borrowing powers until it is entitled to commence business. Generally, a company may exercise its borrowing powers in any way considered appropriate; by special mortgage of the whole or any part of its property; by equitable mortgage through the deposit of title deeds; by giving a floating charge over its undertaking; by issuing debentures or debenture stock; by accepting unsecured loans or loans secured by the personal guarantee of directors or other persons; by bills of exchange, promissory notes, or by overdrawing its banking account.

A person who lends money to a company is presumed to know the general law and, like other persons dealing with the company, he should familiarize himself with the constitution and powers of the company as disclosed by its Memorandum and Articles of Association, in order to ensure that the contemplated transaction is within the general authority of the company. He should also ensure by an inspection of the register of mortgages and charges that the company has not exhausted its borrowing powers. For if the position should be that the company is without power to borrow to the extent desired, the contract for the loan being beyond the powers of the company is completely void, so that the company cannot be charged either on the loan or in an action for money had and received. An *ultra vires* contract is incapable of ratification, even by all the members of the company, and the position cannot be legalized by altering the company's Memorandum. Although the lender has no right of action against the company in respect of the loan itself, he has certain other rights relative to the monies received by the company from the loan. The loan may, of course, be repaid voluntarily by the company or a guarantee of the loan may be enforced, as, for instance, where directors have personally guaranteed payment by their company of a loan made in connection with an *ultra vires* arrangement with the company. The lender retains the right to intervene before the money is spent and restrain the company by injunction from parting with the money. If the money has been expended by the company in paying off debts, he has a right to stand in the place of the creditors concerned, provided it is clearly shown that the borrowed money has been used to pay off debts enforceable against the company and the debts have been paid by some agent of the company so authorized; but in this matter he is not entitled to any priorities, securities or rights relative to the interest of any creditor who has been satisfied with his money. If, however, the money cannot be traced, the lender may rank equally with the shareholders in a winding up, but he cannot himself present a petition to wind up.

The lender of an *ultra vires* loan has a right against the directors of the borrowing company personally for their breach of an implied warranty of authority, if their acts amount to an implied representation of fact. For a director or other agent who assumes an authority which he does not possess and induces some other person to deal with him on the faith of this assumed authority is liable in damages for breach of warranty of authority.

Borrowing within the powers of the company, but beyond the powers of the directors, is irregular, and the securities given are inoperative unless the shareholders elect to ratify the acts which the directors have done beyond their legal powers or unless the company is estopped from claiming their invalidity under the rule of constructive notice. For example, if a lender ascertains that the exercise of borrowing powers is subject to the sanction of a resolution by the company in general meeting, he is entitled to assume, in the absence of information to the contrary, that a resolution has been passed, on the basis that he has no means of knowing whether or not compliance has been made with the internal regulations of the company. The position would be otherwise if the Articles required the passing of a special resolution rather than an ordinary resolution for this purpose, for copies of all special resolutions must be filed with the Registrar of Companies at Bush House and made available for public inspection.

Debentures

A debenture is a document which either acknowledges or creates a debt. The Act states that the term "debenture" includes debenture stock, bonds and any other securities of a company, whether constituting a charge on the assets of the company or not. Debentures do not form part of a company's capital, but acknowledge the indebtedness of the company to their holders. The ordinary form of debenture contains a promise by the company to repay the principal on a date specified and to pay interest in the meantime. It also charges the company's assets as security for the amount borrowed and states the terms and conditions of issue. This form of debenture usually makes the principal money payable in a stated number of years from its issue and provides for accelerated repayment if the underlying security appears to be endangered. This position is specified to arise on non-payment of interest, or when an execution or distress is levied and remains unsatisfied, or a resolution is passed for voluntary liquidation or a winding-up order is made. Moreover, a debenture-holder is entitled to apply for a receiver to be appointed if he can prove that his security is in jeopardy. If the debenture does not provide for repayment to the lender or holder for the time being at a future date, the debenture will be perpetual or irredeemable, subject to any condition specified in the debenture which makes the security enforceable, as in the event of the company being liquidated.

Debentures are usually redeemable, but the Act expressly provides that debentures may be issued on terms that they are not repayable at all or only on the happening of a contingency, however remote, such as a winding-up, or on the expiration of a period, however long. When

debentures are to be redeemed, the method of redemption is usually provided in the terms of issue ; for instance, by sinking fund, or by open-market purchases, or by an insurance redemption policy, or by the company making appropriations of profit to cover the cost of redemption, or by the company issuing a further series of debentures to pay off those existing.

When a successful company has sufficient assets on which to secure an issue of debentures, an issue may usually be made at a relatively low rate of interest compared with the percentage earnings on the total resources employed by the company. This arrangement benefits the ordinary shareholder by avoiding an increased issue of equity shares and also has certain taxation advantages. Debenture-holders are usually concerned with the maintenance of a minimum standard of profits and with the borrowing company following a reasonable financial policy rather than with the prospects of greatly increased profits. On the other hand, an issue of debentures may tend to restrict credit facilities in certain cases by detracting from the security which the company can offer its trade creditors. For in the event of the company failing to meet interest payments at due date, or to redeem debentures if and when their terms of issue so require, the position of creditors may be adversely affected by the appointment of a receiver for the debenture-holders with a prior claim to receive payments subject only to certain restricted priorities.

The debenture instrument which acknowledges the indebtedness of the company to the holder is usually secured by a mortgage or charge, but companies of undoubted financial standing may issue naked debentures which, whilst giving no physical security to the lender, carry the sealed promise of the company to repay the loan with interest on stated terms. This class of debenture is considered below under the heading of Unsecured Notes and Convertible Loan Stock.

When money is loaned to a company on the understanding that debentures are to be issued as security charged on the whole or part of the assets of the undertaking, the lender immediately obtains an equitable charge on the ground that equity treats as done that which ought to have been done. Secured debentures, in addition to carrying the right to interest in the hands of their holders, give security by a mortgage or charge on the company's assets, so that the assets charged may not be disposed of by the company as long as the charge remains. Mortgage debentures are those which are secured substantially by direct specific mortgage on freehold, or long leasehold estate, or other immovable property, or ships. Debentures are often supported by a floating charge, a form of security which permits the company to deal freely with its assets in the ordinary course of business by their disposal and replacement, whilst affording a security for realization by the debenture-holder in case of need. Debentures are frequently secured by a trust deed, whereby specific property is mortgaged to trustees to be held by them on trusts giving the company a right to deal with the property which is restricted but adequate for the needs of their business. Whatever the precise name given to an issue of debentures, their value depends on the underlying assets and the terms of issue.

Debentures, apart from being secured or unsecured, and redeemable or irredeemable, may also be payable to bearer or their registered holders. Debentures payable to bearer are negotiable instruments, transferable from one person to another by mere delivery of the document, without the knowledge of the company. The characteristics of a negotiable instrument are that the property in it passes from hand to hand by mere delivery, that the holder in due course is not prejudiced by defects of title of his transferor or previous holders, that the holder can sue in his own name and that he is not affected by certain defences which might be available against previous holders ; for example, fraud to which he is not a party. Bearer debentures are rarely issued as the *ad valorem* stamp duty is greater than that attracted by registered debentures. When issued, interest coupons are attached and interest and principal are payable on presentation and delivery of the coupons and debenture respectively. Bearer debentures may be payable to bearer simply, or payable with power to bearer to have them placed on a register, and, if registered subsequently, withdrawn therefrom. Debentures payable to registered holders are not negotiable instruments and are transferable only in the manner indicated in the debenture instrument and subject to the equities. As investors are unlikely to be attracted by a security which may be subject to depreciation or defeat by the unexpected obtrusion of some latent equity, a provision is usually inserted in the debenture instrument to exclude the equities. Debentures payable to registered holders may have interest coupons attached payable to bearer.

The registration of debentures simplifies their title, and the register provides an easy source for communicating with holders in the event of a reconstruction, redemption, or in respect of further issues to be made. Registered debentures are favoured by investors and are not subject to the risks of damage or loss incident to bearer debentures. The company cannot lawfully register the transfer of a registered debenture unless a proper instrument of transfer has been delivered to the company, notwithstanding anything in the Articles. This does not, however, prejudice the right of the company to register as a debenture-holder any person to whom the right to a debenture has been transmitted by operation of law.

Debentures may be issued at, above or below their par value, subject to any relevant powers or restrictions in the Memorandum or Articles of the company. As a company may pay any rate of interest for a loan under its borrowing powers, it may do so by issuing debentures at a discount, even to a director of the company, provided he takes the debentures on the same terms as the public, for he does not thereby make any profit by virtue of his office. Particulars of the amount of discount has to be registered under the Act. However, the issue of debentures at a discount cannot cover the issue of shares at a discount by giving debenture-holders an option to exchange debentures issued at a discount for fully-paid shares in the company, as this procedure would be tantamount to the issue of shares at a discount. Where debentures are issued entitling their holders to receive a bonus out of

profits, the company cannot, in the absence of profits, cover the bonus payment by issuing instead fully-paid shares. Debentures may be issued on terms which provide for payment of a premium on their redemption. A debenture may be issued to support a bank overdraft by simply sealing, delivering and registering the debenture instrument. Where debentures are the subject of a public issue, copies of the prospectus have to be filed with the Registrar of Companies and applications and allotments dealt with as in a share issue without, however, need to make a return of allotment to the Registrar of Companies.

Difficulties used to arise regarding the re-issue of debentures, as when a company wished to pay off a loan secured by debentures and to keep them alive for subsequent re-issue elsewhere. The Act has covered this position. Accordingly, a company may re-issue debentures, either by re-issuing the same debentures or by issuing others in their place, unless it has by some act, such as by passing a resolution to that effect, shown its intention to cancel them, or there is an implied or express provision to the contrary in the Articles or in any contract entered into by the company. In the event of a company depositing its debentures to secure advances on current account or otherwise, the debenture is not deemed to be redeemed when the company's account comes into credit whilst the debenture remains deposited. Subject to this, the person entitled to a re-issue of redeemed debentures has the same priorities as if they had never been redeemed. However, debentures which are repayable on a fixed date cannot be re-issued as perpetual debentures or as repayable at some other date. When debentures are re-issued, the new debentures must be re-issued on the same terms as the original debentures. Usually debenture-holders are given a right to exercise an option to convert their holdings to a new issue. When the company exercises its right to redeem, cash does not necessarily pass to cover the transaction, for a mere accounting entry from the old debenture account, thus closed, to the new debenture account is sufficient.

The priorities of debentures depend on their terms of issue. Usually debentures of the same series are arranged to rank equally with one another. The *pari passu* provision in a debenture places all debentures of the series on the same level of security, so that if the security is enforced the amount realized is divided rateably amongst their holders in proportion to the amount due in respect of principal and interest on each debenture. Those holders who have not been paid interest are not entitled to payment of arrears before the proceeds are distributed. A debenture-holder seeking to enforce the security under such a clause necessarily sues on behalf of all the debenture-holders of the series. Where no *pari passu* clause applies, the rule is, *prima facie*, that the legal estate has priority, or, as between individual debentures of the same series, that debentures, when issued simultaneously, rank in numerical order, or when issued at different times, rank in order of time.

Generally, fixed charges take priority in the order of their creation. A fixed charge of specific property takes priority over a floating

charge previously created, unless the specific charge is made subject to the prior floating charge. A clause in debentures secured by a floating charge which prohibits the creation of subsequent charges ranking before or equally with the debentures does not avoid this rule unless the holder of the fixed charge has notice of the clause. Nor does the prohibition prevent a subsequent equitable mortgagee who obtains the title deeds of property forming part of the debenture-holders' security and takes without notice from obtaining priority. A fixed charge made expressly subject to a floating charge is postponed as from the date when the floating charge is crystallized by the appointment of a receiver.

Floating Charges

The most common form of debenture in practice is that which creates, either with or without other security, a floating charge which interferes least with the company's business, whilst providing a security to which debenture-holders can resort should the need arise.

The characteristics of a floating charge are that it is a charge on the assets or a class of assets, present and future, of a class which would be changing from time to time in the ordinary course of business, and it is contemplated that the company may carry on its business as usual so far as concerns the assets charged until some action is taken by or on behalf of the person in whose favour the charge has been created. The floating charge need not comprise all the assets of the company, and it is immaterial that the assets charged do not change or turn over with great frequency. Thus a floating security is an equitable charge which attaches to the various assets of a going concern, but remains dormant either until the company ceases to be a going concern or until the person in whose favour the charge was created intervenes after default, unless, of course, he suspends his right to intervene. The equity of the holder does not extend to seizing any particular asset until some event has occurred to crystallize the charge into a fixed charge, although he may have demanded repayment, unless there is some special provision otherwise. As a floating charge is only an ambulatory security on the assets for the time being, the company is at liberty until the security becomes fixed to deal with its property and assets in the ordinary course of business as if the floating charge were non-existent. From the lender's point of view, debentures and loans secured by a floating charge on current assets which are normally self-liquidating may present a preferable security than a fixed charge on a whole factory which may become unsaleable in time of severe trade recession.

As the essence of a floating charge is that the company can freely deal with, and so freely charge, its property in the ordinary course of business, the company may, unless otherwise provided in the charge, create other and specific charges having priority over a floating charge. The company may even create a subsequent equitable charge having priority over the floating charge by depositing title deeds with its bankers. A condition may be provided in a floating charge designed to prohibit the company from creating any mortgage or charge prior

to or equal with the floating charge and the prohibition may be expressed as absolute or relative to certain assets only ; for example, to freehold properties. A clause of this kind may prove a hindrance to the company ; for instance, in seeking a loan from its bankers at short notice. Moreover, such a prohibition is not completely protective as against a subsequent specific charge, whether legal or equitable, for if the company disregards the qualification and creates a charge in favour of a person who is without knowledge of the prohibition or restriction, he obtains priority to the floating charge by virtue of his legal estate. The legal mortgagee may obtain priority provided he shows that, although he was aware of the floating charge, he had no knowledge of the qualification, for notice of a document is in this case not notice of its contents. Registration of the particulars of debentures under the Act, although it is a constructive notice of the debenture, is not notice of a restriction against the creation of prior charges unless details of the restriction are also registered. Of course, a specific charge which is made expressly subject to a floating charge is postponed as from the time the floating charge becomes operative by the appointment of a receiver. On the other hand, where a floating charge expressly permits the company to mortgage its undertaking, the company is not thereby authorized to create another floating charge ranking equally with or in priority to the original one, but where the company has reserved power to charge certain assets, it may create a floating charge on those assets in priority to the general floating charge.

A floating charge becomes fixed by the happening of an event which causes it to crystallize, subject to existing equities. In any event, the charge crystallizes on a winding-up and immediately fixes and becomes enforceable against all the assets of the company existing at that date. In the absence of any contrary provision in the debenture, monies which are not currently payable become, as against the property, immediately payable. The principal may become payable and the security enforceable as provided expressly in the debentures, apart from where the principal is repayable at due date in the case of a terminable debenture. For example, the charge may attach if the company defaults in payment of interest, or ceases to carry on business, or if a receiver is appointed, or if an execution levied on the company's assets remains undischarged, or if a resolution is passed for voluntary liquidation of the company, or if it appears that the company is insolvent. Apparently, any event may be specified in which the monies secured shall be repayable so long as it does not clog the equity of redemption. None of these events causes an automatic fixing of the charge until some step has been taken, such as the appointment of a receiver by the debenture-holder. However, if the company deals with its assets otherwise than in the course of its business, for example, by selling its undertaking and so ceasing to be a going concern, the security will become immediately enforceable. Any provision inserted to prevent redemption on payment or performance of the debt or obligation for which the security was given is void as a clog or fetter on the equity of redemption. For example, a provision may be bad

as a clog on the equity of redemption, where, by the terms of redemption, the security remains charged after the principal and interest have been satisfied, to secure some collateral advantage to the debenture-holder. The doctrine of clogging the equity does not, of course, apply to an irredeemable debenture as their issue has statutory authority.

When a charge crystallizes it settles on the assets as then existing, but subject to all prior equities and paramount to any subsequent charges and unsecured creditors, other than preferential creditors. A floating charge is thus valid against general creditors at all times, except where the Act has given preference in a winding-up for local rates, clerks' and servants' salaries and workmen's wages. It is also valid against execution creditors, apart from those who have completed execution. It even has priority to monies advanced with sanction of the court to a liquidator to carry on the business of the company. However, where a company is being wound up, a floating charge on the undertaking or property of the company created within twelve months before the winding-up is invalid, unless it is proved that the company was solvent immediately after the creation of the charge, except as to the amount of any cash paid to the company in consideration for the charge at or after the time when the charge was created, with interest at 5 per cent per annum, or such other rate as may be ordered by statutory instrument. The floating charge is invalidated, but the debt remains although unsecured. A floating charge so invalidated may also be void as a fraudulent preference if created within six months of the winding-up. This provision applies also to fixed charges. Although a floating charge created more than twelve months before the winding-up cannot be void under either section, it can, however, be set aside in circumstances amounting to fraudulent trading.

Trust Deeds

There are practical difficulties in the way of creating a specific charge in favour of the holders of a series of debentures otherwise than by means of a trust deed. Debentures supported by a trust deed enhance the security given to lenders, for a legal security is vested in trustees charged with the duty of safeguarding the rights and interests of debenture-holders.

The usual form of trust deed recites the resolution to raise a loan by debenture issue and the consent of the trustees to act for debenture-holders. A covenant follows from the company to repay the principal either at a fixed date (say fifteen years from issue) or upon the happening of specified contingencies, with periodical interest payments meanwhile. The deed usually contains a legal charge of the freehold and leasehold properties of the company upon certain trusts in favour of the debenture-holders, together with a floating charge over the rest of the assets and undertaking. The trusts are to allow the company to continue its business with the use of the assets comprised in the security. Various events are specified on the happening of which the charge becomes enforceable, as upon a breach of covenant or condition, upon execution levied, upon default in payment of interest or repay-

ment of principal, or upon a winding-up. Upon failure of the company to repay monies which have become due, the trustees may be empowered to appoint a receiver and manager to carry on the business, or, at the request of a specified majority of the debenture-holders, to sell the mortgaged properties and apply the proceeds in paying off the debentures and transferring any surplus amount to the company. There are also covenants by the company to carry on the business, to properly maintain and insure its properties and other assets, and to do all other things which seem requisite for the protection of the debenture-holders.

The trust deed also organizes debenture-holders by arrangements which permit the company to deal with them as a class. Accordingly, the deed makes provision for meetings of debenture-holders or debenture stock-holders in order to ascertain their wishes should the need arise by means of binding resolutions on all. Whilst a majority clause must be exercised for the benefit of all debenture-holders and not of a particular debenture-holder, its existence prevents an unreasonable minority from preventing an arrangement being made for the general benefit of debenture-holders and the company. In the absence of a majority clause, the court has statutory power to sanction an arrangement or compromise. A majority clause is often inserted also in simple debentures. The majority clause may enable the company in times of adversity to reduce the rate of debenture interest, or declare a moratorium on repayments of principal, or otherwise to facilitate the making of any arrangement necessary in the interests of all parties.

The creation of debenture stock is made practicable by means of a trust deed containing a charge upon the property of the company. Debenture stock is fractionally sub-divisible. A stock certificate is issued to each allottee or transferee of stock stating, *inter alia*, in the case of registered stock, that the person named is the registered owner, or, in the case of bearer stock, that the bearer is the owner of the stock, upon the printed terms and conditions upon which the stock is issued and held.

Deeds under which trustees for debenture-holders were appointed used to contain clauses absolving the trustees from liability for anything other than fraud on their part. Any provision in a trust deed is now void which aims at exempting a trustee from or indemnifying him against liability for breach of trust where he fails to show the necessary degree of care and diligence required as trustee, except a release otherwise validly given in respect of acts of omission or commission by a trustee before the giving of the release, or a provision in the trust deed enabling such a release to be given by a majority of not less than three-fourths in value of the debenture-holders present and voting in person, or where proxies are allowed, by proxy, at a meeting summoned for the purpose and either with respect to specific acts or omissions, or on the trustee dying or ceasing to act. A person who was a trustee on 1st July, 1948, may remain protected by the provisions of a deed in force. All the trustees of a deed, present and future, or any named trustee or proposed trustee, may also be protected while any trustee still remains entitled to the protection of existing provisions by means of a resolution passed by a majority of

not less than three-fourths in value of the debenture-holders present in person, or where proxies are permitted, by proxy, at a meeting summoned for the purpose in accordance with the provisions of the deed, or if the deed makes no provision to this end, a meeting summoned for the purpose in any manner approved by the court. Trustees are usually given remuneration by the deed, which may give them an effective lien ; otherwise their claim for remuneration ranks after claims of debenture-holders or debenture stock-holders.

Remedies of Debenture-Holders

The remedies available to debenture-holders are of vital importance to them.

The holder of an unsecured debenture has only the same rights as any other ordinary creditor of the company. He may sue the company for principal and interest due and, if necessary, issue execution on the judgment. He may present a petition for winding-up the company, either before or after obtaining judgment. If a winding-up is already in progress, he may prove for his debt as an ordinary unsecured creditor, but he cannot retain the benefit of an execution against the liquidator, for, as he is without security, no priority attaches to him over other creditors of the company. When there is a breach of condition other than to pay principal and interest and the note does not provide for repayment to be made immediately on a breach of condition, he can sue for damages, or, if there is a sum due to him in respect of which payment is not made on demand, he can present a petition for winding-up the company without previously suing on the covenant. Even if the principal does not become immediately due, the note-holder may be able to petition as a contingent or prospective creditor, provided he can carry the other note-holders with him and if he first gives security for costs and before the hearing takes place establishes a *prima facie* case for winding-up. He needs to carry the other note-holders with him, for his right is merely a representative one as a member of a class.

In a debenture which is secured without a trust deed, the security is created by the charge contained in the debenture on the property secured with payment of the debt. The remedies depend on the terms of the security. The debenture usually provides that if the security becomes enforceable, a majority of the debenture-holders may enter into possession and exercise the power of sale and of appointing a receiver. A debenture-holder may sue on behalf of himself and all other debenture-holders to enforce the security, whereupon the court may make a declaration of the charge, appoint a receiver and possibly a manager, direct necessary accounts and enquiries and order a foreclosure or sale of the property charged. A debenture-holder may also sue in his own name upon the covenant contained in the debenture to pay principal and interest and may petition the court to wind-up the company. If the company goes into liquidation, the rights of the secured creditor are not prejudiced, for the liquidator cannot obtain an injunction to restrain a sale by the secured creditor except by paying the amount due, or, if the amount is not agreed, paying the amount claimed into court.

When debentures are secured by a trust deed, the remedies of debenture-holders depend mainly on its provisions. Provision is usually made that on default by the company, the trustees may enter into and sell the property charged and distribute the proceeds amongst the debenture-holders. A debenture-holder may sue on behalf of the class or the trustees may sue. The power of a secured creditor to appoint a receiver can be exercised even after the company has gone into liquidation.

The trust deed usually gives power in certain events to appoint a receiver and manager. When financial difficulties arise by reason of limitation of credit, it may be desirable to appoint a receiver and manager in order to resuscitate the business, for in a forced liquidation assets have merely a break-up value, which is usually much less than the value of the going-concern. Irrespective of whether or not the debenture or trust deed expressly empowers the appointment of a receiver, the holders of the debentures or debenture stock can usually obtain from the court the appointment of a receiver and also, if necessary, a manager. The court will appoint a receiver and manager at the instance of the debenture holders if it is advisable to continue the business for the better realisation of their security, provided the business is a going-concern whose assets are included in the charge. A receiver or a receiver and manager will be appointed by the court if the principal or interest is in arrear, or if the security is in jeopardy, or if the company has sold the whole or practically the whole of its undertaking and assets except in the ordinary course of business and is no longer a going concern, or if an order is made or a resolution is passed for winding up. When such an appointment is made, the person responsible for the appointment must give notice of the fact to the Registrar of Companies within seven days of the appointment. Likewise, a receiver or manager who ceases to act must notify the Registrar. After the appointment of a receiver or manager, every invoice, order for goods, or business letter issued by or on behalf of the company, or the receiver or manager, or the liquidator, being a document on which appears the name of the company, must state that a receiver or manager has been appointed. A receiver and manager has a duty to complete contracts undertaken by the company before his appointment if their completion will serve to preserve the goodwill of the company.

The position of a receiver depends upon whether he is appointed by the court or by the debenture-holders. The duties of a receiver appointed by the court in a debenture-holders' action is to act under the directions of the court in securing the assets or managing the business with a view to sale. Whilst acting within the scope of his duties as an officer of the court, he is responsible only to the court which appointed him. He enjoys an authority not possessed by a receiver appointed under the debenture; for instance, it is contempt of court to interfere with or withhold the company's assets from the receiver. He acts as a principal as regards persons dealing with him and incurs personal responsibility subject to a right to indemnity out of the assets for all liabilities properly incurred, but he has no responsi-

bility as regards contracts entered into by the company before his appointment.

The general duties of a receiver appointed by the debenture-holders depends largely on the terms of his appointment. He will usually enter into possession of the company's property, collect the assets and if need be, sell all or any of them. From the proceeds, he will pay the expenses of the business, interest on prior charges, preferential debts and his own remuneration and from the balance will pay interest to the debenture-holders. A receiver appointed by debenture-holders as an agent of either the debenture-holders or the company now has the same right of access to the court as a receiver appointed by the court, in order to obtain instructions and protection in cases of doubt and difficulty. For instance, he may wish to borrow money for the purpose of continuing the company's business and to charge the moneys as security on the assets in priority to the debentures. He is personally liable on contracts entered into by him in the performance of his duties, except in so far as the contract with the third party with whom he is dealing provides otherwise, to the same extent as if he had been appointed by the court, but he is entitled to be indemnified out of the assets of the company unless he entered into the contract without authority. This provision does not affect any right of indemnity which he may have otherwise, as, for instance an indemnity given to him by the debenture-holders.

Unsecured Notes and Convertible Loan Stock

As indicated previously, unsecured notes present a method of enabling a company to borrow on note of hand alone, by merely acknowledging its indebtedness and undertaking to repay the sum borrowed by a certain date, together with interest at a specified rate meanwhile. Unsecured notes are, in fact, naked debentures, for a debenture need be nothing more than an acknowledgment of indebtedness. Unsecured notes provide a means of obtaining short-term capital to provide temporary financial accommodation with unsecured obligations and taxation advantages. This form of borrowing appeals to companies which desire to avoid charging their assets, but find the raising of capital by an issue of preference shares somewhat prohibitive owing to the incidence of profits tax. Many variations are possible ; redemption provisions may require a sinking fund and repayment by drawings or purchases in the open market ; the fund may be cumulative or operate by equal annual amounts ; provisions may be made for accelerating the operation of the sinking fund and either for cancelling or re-issuing stock purchased by such accelerations ; income notes may carry cumulative interest rights and so restrict the payment of dividends to shareholders until the amount of interest due on the notes has been paid, or attached conditions may be designed to prohibit the company from creating any charge on its assets whilst any unsecured notes remain outstanding.

This method of financing is, however, available only to substantial companies of undoubted financial strength and integrity. Whereas a first mortgage debenture stock may appear to offer an impregnable

security, the appearance is illusory in the case of a weak company which is able to borrow only by creating the strongest form of security. On the other hand, an unsecured note issue by a company of undoubted financial standing which wishes to avoid charging its assets presents a much safer attraction to the knowledgeable investor in spite of the apparent weakness in the form of contract.

The market return expected on issues of this kind will vary according to whether or not the issue is supported by a sinking fund and whether or not it carries conversion rights into ordinary shares. When heavy capital expenditure is contemplated which is not expected to be remunerative for several years, recourse may be made to temporary borrowing by the issue of convertible loan stock, which carries conversion rights into ordinary shares timed to operate from the estimated date that the development work undertaken will become remunerative. In this way, the company obtains cheap terms in the early stages when most needed and the issue avoids depressing the equity value of ordinary shares as in a "rights" issue. For if funds are raised by an immediate issue of ordinary shares in order to finance developments which are likely to be for some time unremunerative, the same net profit has to service a larger capital, so that the effect is to "water down" the capital, and thus reduce the current market price of the company's shares and the price at which the additional capital could be issued and the "rights" value of the issue. It is usually cheaper to service a loan issue than to service an issue of ordinary shares. Moreover, interest can be paid out of capital, although this is also possible in certain cases already mentioned in respect of ordinary shares. The issue of convertible loan stock may, therefore, be expected to appeal to investors in general, but the main factors in the success or failure of the issue are the standing of the borrower and the terms of issue. For example, when the standing of the borrower is high, loan stock may be issued at par, and may be repayable at par, say, in ten to fifteen years' time, with the right of holders in the meantime to convert convenient multiples of stock into ordinary shares in accordance with a descending conversion scale of shares for stock as the repayment date approaches. The scale may be calculated to make ordinary shares of the company available at a gradually increasing price, as the prospects of maintaining or improving existing dividends in relation to total capital employed becomes assured by the enurement of contemplated benefits. In order to increase the attractions of the offer to the market, safeguards may be inserted in the terms of issue against the value of conversion rights being "watered down" by subsequent new issues of ordinary capital issued for cash or as a scrip issue.

A resolution of the board normally creates an unsecured note issue, which is usually constituted as an unsecured obligation of the company by deed poll, providing, *inter alia*, that the company will be entitled to redeem the notes wholly or partly at any time after a specified date but not later than a fixed date, at a specified price which may possibly provide a premium on redemption, except in so far as the company has purchased notes in the open market at scheduled prices before the redemption date; that notes redeemed will be cancelled and not

re-issued ; that no further notes will be issued ranking equally with or in priority to the notes without the prior approval of the holders given by extraordinary resolution in a general meeting. Further undertakings may be given on behalf of the company and any of its subsidiaries, to the effect that, so long as any notes are outstanding, no secured mortgages, charges, debentures or debenture stock, except charges made to secure temporary bank overdrafts in the ordinary course of business and specific charges on assets subsequently acquired, will be created or issued by the company unless all the monies in respect of the notes are secured, so that they rank equally with the indebtedness to be secured by such securities and that any security so given will be executed by the company in favour of trustees appointed for that purpose. The rate and date of payment will also be specified and provision made in respect of repayment on a liquidation of the company.

If notes issued individually to note-holders by the company contain covenants with each holder, then each note-holder has his own right to enforce his remedies, subject, however, to certain limitations. In other cases, where unsecured loan stock is created pursuant to deed poll executed by the company, the remedy is by a debenture-holder's action, in which one holder sues the company on behalf of all the debenture-holders. An unsecured note-holder cannot appoint a receiver or execute any powers of sale, because he has no mortgage or charge on the assets of the company. His remedies, as already discussed, are those of an unsecured debenture-holder. Finally, there is need to bear in mind that whether or not the unsecured notes contain a clause that their terms of issue may be varied subject to compliance with certain formalities, their holders may be faced with a scheme under one of the sections of the Act dealing with arrangements and compromises.

Registration of Debentures, Mortgages and Charges

There are no statutory requirements for the registration of unsecured notes, for as no charge is created there is nothing to register. On the other hand, the terms of a particular issue may require a register of note-holders to be maintained. In this event, the note-holder has a right to inspect the register and to receive copies of it on payment of the statutory fee. If there has been a public issue, a copy of the prospectus must be filed on the basis that an unsecured note is a debenture. A security conferred by an unregistered charge which should have been registered is void against an unsecured note-holder, but the holders of the unsecured charge may prove with note-holders as unsecured creditors. The unsecured note-holder is entitled, as a debenture-holder, to receive copies of the company's accounts.

The Act provides for the public registration by the Registrar of Companies of a company's mortgages and charges. The register has to be kept open to inspection by any person on payment of a fee not exceeding 1s. for each inspection. The requirement applies to floating charges on the undertaking and property of the company and to mortgages and charges made to secure an issue of debentures, or

created or evidenced by an instrument which, if executed by an individual, would require registration as a bill of sale, or made on uncalled share capital, or on unpaid calls made, or on land and interests in land apart from rents and the like, or on a ship or part of a ship, or on goodwill, patents, patent licences, trade marks, copyright and copyright licences, or on book debts (excluding the deposit for securing an advance to the company of a negotiable instrument to secure payment of any book debts of the company). Registration is necessary also where a company acquires property subject to a similar charge. Mortgages and charges of this kind, so far as any security on the company's property or undertaking is so conferred, are void against the liquidator and any creditor of the company, unless registered within twenty-one days of their creation, or within such further time as may be requisite in the case of charges created outside this country or property abroad. Failure to register does not prejudice any contract or obligation for repayment of the money so secured. When the charge becomes void against the liquidator and any creditor of the company for want of registration, the money secured becomes immediately payable.

Although it is the duty of the company to furnish the Registrar with the requisite information, registration may be effected on the application of any interested person, for otherwise the creditors would have to rely entirely on the company. Any other interested person who effects registration can recover from the company the amount of any fees properly paid by him to the Registrar on registration. The court is empowered, on the application of the company or of any person interested, to grant relief where it is just and equitable to do so, on such terms and conditions as seem proper, by extending the time for registration, or, if necessary, by ordering the rectification of any mistake or misstatement.

The Registrar has to certify the registration, stating the amount secured. His certificate is conclusive evidence that compliance has been made with the statutory requirement as to registration. The company must also cause a copy of the Registrar's certificate to be endorsed on every debenture or certificate of debenture stock issued by the company after the creation of the mortgage or charge, the payment of which is secured by the charge registered. Since the public registration of charges affects the company's credit, the Act authorizes the Registrar to note any partial or complete satisfaction of charge or the fact that part of the property or undertaking has been released from the charge or has ceased to form part of the company's property or undertaking, as the case may be.

Every company has to keep a register of charges, open to public inspection at its registered office, containing brief details of all charges specifically affecting its property and of all floating charges on its undertaking or property. The exclusion of any charge does not, however, invalidate it in any way. The register of charges and copies of any instrument creating any charge requiring registration with the Registrar of Companies must be open for at least two hours per day during business hours to the inspection of any creditor or member

without fee, and the register of charges must also be open to the inspection of any other person on payment of a fee not exceeding 1s. for each inspection.

The Act does not specifically state that a company shall keep a register of debenture-holders, but any register kept shall be open to the inspection of any registered holder of the debentures or any holder of shares in the company without fee, and of any other person on payment of a fee not exceeding 1s., subject to such reasonable restriction as the company may in general meeting propose. The register must be normally kept open for inspection at the registered office of the company for at least two hours in each day, but may be closed entirely for any period or periods not exceeding thirty days in any year as specified in the Articles, or in the debentures or other relative documents. Copies may be obtained by any person on payment of a fee not exceeding 6*d.* per 100 words. A copy of any trust deed for securing an issue of debentures must be forwarded to an interested debenture-holder at his request on payment of a small fee.

CHAPTER 25

SOURCES OF FUNDS

TEMPORARY sources of credit will be considered under the headings of bank overdrafts and organized credit, after which consideration will be given to permanent sources of credit.

Bank Overdrafts

The banker is normally a short-term lender and, being in the position of a trustee for the safe return of his depositor's money, requires that any loans he makes must be safe, readily payable, preferably self-liquidating and profitable. Clearly, the banker cannot risk losing capital sums held by him on trust for a slight percentage gain by way of interest charges ; but the business which quickly turns over its circulating capital can soon recover the charges which are made for overdraft facilities, for profit made by rapidly circulating capital is cumulative over the year, whereas bank interest for the year is fixed so long as the overdraft is maintained at a fairly constant level. Nevertheless, it is always advisable to raise outside capital when permanent funds are required if this course is possible rather than to rely upon temporary bank advances which appear to be cheaper at the time.

The banker will require to know the borrower's maximum requirements, and he will satisfy himself that these are reasonably adequate for their purpose. Although the banker does not expect to realize any security given to cover an advance, he must be reasonably assured as to the source and prospects of repayment. As a short-term lender, he may expect repayment from trading income, reduction of work-in-progress, or from such sources as building mortgages or share placings.

A banker does not usually grant overdrafts for greater amounts than shareholders have invested in the borrowing company and he proceeds with caution, particularly if the amount of fixed capital invested in the business is less than the value of fixed assets. He will also satisfy himself that amounts owing to secured creditors with prior rights and preferential creditors are not excessive in relation to his client's requirements.

The banker will not usually grant accommodation to support an expansion programme unless he believes that permanent capital will be obtained without particular difficulty and the expanded turnover can reasonably be anticipated on a profitable basis. A little extra working capital for a company which is operating near its break-even level may bring rich rewards, whereas, facilities for extensions which give rise to a higher break-even point carry an increased risk factor and could create a difficult situation if marketing conditions were to deteriorate. In general, bank overdrafts should be used normally to finance temporary increases in working capital which will be self-liquidating through the normal course of trade. It cannot, however,

be too clearly appreciated that there is a definite limit to the amount of working capital which can be profitably employed. This needs careful control if financial embarrassment is to be avoided. Occasional acquisitions of extra plant, uneconomic and unbalanced stock-levels and outstanding debts, all absorb working capital otherwise available for essential needs.

The banker will examine the balance sheets and profit and loss accounts of the borrowing company in order to assess its earning capacity on a "going-concern" basis and also to estimate the break-up value on a "gone-concern" basis. In assessing the "going-concern" value of the business, he will assess the strength of the current trading position by examining such ratios as those existing between purchases and creditors, to indicate whether excessive credit is being taken; between stocks and sales, to give an indication of the speed of stock-turnover and extent of stock-piling; and between debtors and sales, to disclose whether excessive credit is being allowed. A list of principal debtors may also be required to disclose the spread of accounts and possible risk of bad debts, particularly where sales depend upon a handful of principal customers. The banker will thus ensure that he is not merely helping to postpone the borrower's inevitable failure or assisting it into a position of greater financial strain by encouraging over-trading. On the other hand, it is to his advantage to grant assistance which avoids under-trading arising from lack of sufficient working capital.

The banker assesses the value of a business on a "gone-concern" or break-up value in order to insure against any unexpected happening, such as a trade recession, which would place his loans in jeopardy. He thus assesses the position which would arise in the event of a future liquidation or bankruptcy of a business, and in so doing takes a pessimistic but realistic view in making his valuation, particularly of such balance sheet items as goodwill, and patents. He appreciates, too, that the value of assets to unwilling buyers in an enforced sale may be considerably less than balance sheet values in normal times; for example, stocks-in-trade often produce much less than their balance sheet values in these circumstances, for slow-moving and unbalanced stocks may prove saleable only as scrap. Heavy expenditure may be needed to complete constructional works. Thus the "gone-concern" basis of valuation gives a figure which is normally much less than the "going-concern" basis, and, although the probability of any happening in the way of liquidation may be apparently negligible by reason of a high going-concern value, the prospect of an unpredictable economic future cannot be ignored by the prudent banker. Until full confidence is secured, the bank is unlikely to grant other than a fluctuating overdraft to meet the peak working-capital requirements of the borrower. In the case of private companies, the bank may require not only an adequate margin of safety on the assets secured, but the joint and several guarantees of the company's directors, provided these are not "men of straw". On the other hand, the directors can look forward to an increasing measure of support as a company gains the confidence of its banker. Some of our largest companies owe their successful growth in some measure to the confident support of their bankers.

The bank usually requires a debenture on the specific assets of the borrowing company with or without a floating charge on the whole of the business. The clauses which charge the assets of the company will be carefully drawn in the debenture given to the bank. There will usually be a charging as security of all the business and assets of the company, present and future, with the debenture as a first charge, and a covenant by the company not to create any further mortgages ranking equally with or prior to the debenture. A detailed section of the debenture gives the conditions under which the money secured by the debenture will become payable. Upon default, a floating charge given by the debenture becomes fixed on the assets over which it has previously hovered and the bank can exercise its right to appoint a receiver, who will be deemed to be the agent of the company. Some companies dislike having to register debentures with the Registrar of Companies, as this procedure is a public notification of a charge on the assets of the company. If, subsequently, the position of the company deteriorates, but not to an extent which justifies the appointment of a receiver, the bank may institute an investigation into the affairs of the company with a view to proposing corrective action, followed by monthly progress reports from an independent accountant.

It is appropriate here to mention the temporary credit facilities afforded to companies of high standing by the use of the bank bill as distinct from the trade bill of exchange, for the bank bill may be a cheaper method of finance than a cash loan. Acceptance credits provide a method of temporary financing, whereby an acceptance house, or a merchant bank, supports the market credit rating of the borrower with its own, and so enables medium and large companies to borrow on the discount market by giving the lender a security usually by way of charge on stocks and trade debtors, so that the amount borrowed is related to working capital requirements. With a bank acceptance credit, the acceptance house which specializes in the granting of these credits guarantees payment in London at maturity by accepting a bill drawn on it by the borrower, for which purpose it needs to be put in funds by the drawer before the due date. Thus the bill, as a prime bank bill, becomes an attractive short-term investment for the London money market. The borrower is meanwhile accommodated by the proceeds of the discounted bill and makes arrangements to reimburse the acceptance house by the time it matures. This arrangement may operate either in specific cases for the financing of purchases or seasonal increases in stocks or work-in-progress, or by means of a "revolving credit", which results in the provision of a constant level of accommodation up to an agreed limit, where the acceptance house is satisfied that there will be a continuing volume of supporting business. This method is vulnerable if trade becomes difficult. The transactions best suited to this system are those which are completed within the period of the bill; for example, to enable a manufacturer to purchase raw materials, so that the proceeds of the sale of completed products permit the bill to be met in due course.

Organized Credit

Various finance companies exist which are prepared to finance the acquisition of plant, machinery and equipment. Two methods of organized credit are available. In one, the supplier invoices the goods to the finance company and a hire-purchase agreement is entered into between the finance company and the purchaser, so that ownership of the goods remains with the finance company until the final instalment has been paid. With the banking method, a hire-purchase agreement is entered into between the supplier as owner of the goods and the purchaser as hirer of the goods. The purchaser accepts a series of bills of exchange or promissory notes drawn on him by the supplier, who discounts them with the finance company. As the bills mature from time to time on the dates instalments become due, the purchaser reimburses the finance company. The property in the goods passes to the purchaser when the last payment is made.

A deposit may be required under normal conditions varying from 20 per cent upwards, according to the marketability of the goods and the finance company's opinion of the credit-worthiness of its client. Under normal conditions, payment of the balance may range up to three years by monthly or other instalments to suit the needs of the purchaser. The rate of interest charged is a flat rate which varies according to the estimated risk, so that where the payments are on a monthly basis the effective rate of interest is appreciably higher. It is charged on the value of the goods less the deposit.

Revolving Fund for Industry

As the result of an exchange of notes early in 1953 between the Foreign Secretary and the U.S. Ambassador, a programme was established for the expenditure of counterpart funds from American economic aid under the Mutual Security Act, 1952, so that a fund of £1 million has been established for short-term loans ; as to £700,000 for industry and £300,000 for agriculture. As the fund is of a revolving nature, further loans will be made as the first series is repaid.

Manufacturers seeking assistance from this source may apply to the Board of Trade for loans, preferably not exceeding £30,000, for a period up to three years, or exceptionally up to five years, for the purpose of increasing productivity as quickly as possible ; *e.g.*, by re-equipment and improvement of plant layout. Preference is being given to small and medium-size firms which can show that the anticipated benefits will enable them or their customers to expand their export trade or to meet essential home consumption requirements more efficiently under fully-competitive conditions.

Applications are considered by an independent committee, which makes recommendation to the Board of Trade regarding the granting and terms of loans. The amount and period of the loan and the rate of interest and security requirements are negotiated in each case on reasonable terms. Each borrower is expected to submit periodical progress reports to the Board of Trade, and also to co-operate in making available to others likely to benefit the knowledge and experience gained as a result of the loan. Moreover, the borrower is also expected to have regard to the equitable sharing among employer, employed and

consumers of the benefits of the higher productivity achieved from the loan.

Permanent Credit

The Industrial and Commercial Finance Corporation (I.C.F.C.) was formed with the active support of the Bank of England and the London and Scottish Clearing Banks to provide capital within normal limits of £20,000 to £200,000 for industrial firms which would be unlikely to obtain financial assistance from normal sources. For example, the Corporation provides capital in various forms to private companies which are insufficiently known to obtain help from the London capital market or to afford the cost of a public issue of shares and are therefore dependent upon private investors or other finance houses. The Corporation thus tends to counteract the tendency of new development to be concentrated in the hands of strongly entrenched concerns. Assistance is normally given by way of loan or preference capital. Assistance may be given to developing businesses by making secured or unsecured loans, or taking up preference shares at an earlier stage than would interest other institutions with, possibly, a parcel of ordinary shares at an agreed price, in the hope of a capital profit ensuing in due course to offset the increased risk. Unappropriated revenue balances may be converted into bonus debentures for sale to the I.C.F.C., redeemable by the borrowing company over twenty years. The debentures may give a first charge on the fixed assets of the company and a second charge of a floating nature on its other assets. The borrowing company's banker may co-operate by making available a fluctuating advance to cover working capital requirements, secured by a first floating charge and a second fixed charge on the company's undertaking and assets. The Corporation naturally makes a full investigation before granting facilities and may require the right to appoint a director where the amount advanced is relatively large. Active assistance is also available through the services of its staff of qualified and experienced advisors and technicians. The Corporation normally obtains monthly figures to show the financial and trading position of each client, a procedure which is clearly in the interests of both parties.

I.C.F.C. has extended its interests by providing part of the original capital of £1 million in ordinary shares of Estate Duties Investment Trust Ltd. ("Edith"), formed to assist private companies in raising funds for estate duty. The balance of the initial capital is being subscribed by seven insurance companies and sixteen investment trusts. I.C.F.C. has also undertaken its management with the other shareholders also represented on the board. "Edith" will neither undertake nor promote new capital issues, but is designed to provide "a reliable and neutral means for acquiring and holding as an investment" the shares of private companies without interfering with their management. "Edith" having apparently provided a necessary link between the institutional investor and private companies may be converted into a public company with a quoted share capital, so that institutional investors may participate without increasing their unquoted securities.

The Finance Corporation for Industry (F.C.I.) was established with the active support of the Bank of England, leading insurance companies and investment trust companies to provide essential finance for the development and re-equipment of industrial undertakings, or for entirely new developments. The Corporation has an authorized capital of £25 million, of which a fractional amount only has so far been called up, as the Corporation's resources are largely provided from the banking system by exercising its borrowing powers, which total £100 million. Facilities may be provided in sums exceeding £200,000 at a minimum rate of interest until profits ensure adequate to enable the borrower to make repayment from funds raised through normal market sources, subject to the extent of any option held by the Corporation to take up shares instead. It is generally admitted that the Corporation has not accepted business to the detriment of the normal capital market, but has made finance available for projects which would not normally attract public issue in the early stages, owing to the considerable risk involved without any proportionate initial reward.

The Commonwealth Development Finance Co. Ltd. (C.D.F.C.) has been formed with an initial capital of £15 million, to be subscribed mainly in "A" ordinary shares by a number of influential companies and as to rather less than half in "B" ordinary shares by the Bank of England. The company has initially called up only 10 per cent of its ordinary capital, and is relying upon making use of borrowing powers equal to twice its issued capital in order to finance various projects, which to interest the company must be shown to be commercially prudent and relevant to the sterling area's dollar balance of payments. C.D.F.C. intends to avoid competition in any form with established institutions of the London capital market. The idea is apparently to provide the balancing finance for projects which are already substantially financed and not to finance projects rejected by others. Not more than half a dozen major projects around £1 million each are visualized, so that funds will be widely spread and rotate fairly rapidly though their repayments after investments have passed through their initial nursing period. The hope is that eventually the knowledge of C.D.F.C. participation will confer on an investment project an analogous status in world investment markets as is carried by the name of a London acceptance house on a bill.

Other financial institutions serve specialized needs. The Development Areas Treasury Advisory Committee (D.A.T.A.C.) encourages industry in the development areas. Various finance companies provide long-term finance for private and public companies by advancing secured loans or by taking up ordinary or preference shares, whilst leaving the management virtually in control of the existing directorate so long as satisfactory profits are made.

A company which owns freehold premises may obtain finance, either by mortgaging the premises with a building society or other investor, or by disposing of the freehold to an institutional investor and taking from him a long lease of the premises at a fixed annual rental. With a mortgage, the borrower repays the amount advanced with interest over a period of years. Normally, about two-thirds of the value of the property may be borrowed at rates of interest appropriate to the interest

rate charged by banks, although the size of the advance and rate of interest payable depend on the financial status of the borrower and on the type and situation of the property. The proposed lender, in addition to requiring a satisfactory survey and valuation of the property, will want to satisfy himself from a study of the borrowing company's accounts that the borrowing company will be able to meet interest charges and capital repayments without unduly straining liquid resources after taking into consideration mortgage repayments. The policy of building societies towards investments in industrial properties varies from time to time according to the state of their cash resources and the general financial outlook. The specific mortgaging of freehold property does not usually prevent the obtaining of a bank overdraft on the security of a floating charge over the rest of the borrower's assets. On the other hand, where finance is raised by disposal of the freehold, it is possible to obtain cash up to the full value of the premises, and there are no repayments of capital to be made. The amount obtainable is less when the rent is in the nature of a ground rent, because of the value of the retained lease. Whilst the finance is permanent, or at least for the term of the lease, the borrower may have to find premises or to pay increased rent when the lease expires, and he necessarily sacrifices the value of any improvements made to the property during the period of the lease. In addition, leases generally require tenants to accept full responsibility for repairs, maintenance, insurance and similar outgoings. There are fewer potential investors of industrial premises than of multiple retail premises, where individual shops in good positions provide more manageable assets for the investor.

Normal Market Sources

Issues of capital fall broadly into two classes, according to whether or not any new money is involved. New money is involved for factory extensions or to augment working capital, or even to repay a temporary bank overdraft arranged for these purposes. New money is not involved when it is desired to convert or repay an existing issue, or to make available to the public securities already issued to a limited market. Of course, there is no clear line of demarcation between the two classes, for it is quite possible for an institutional investor to subscribe for a new money issue and then to re-offer the securities to the general public by an offer for sale or placing.

The private company is usually less favourably placed than the public company in raising capital, because of its legal status, for a private company must restrict the right to transfer its shares, limit the number of its shareholders, excluding past and present employees, to fifty, and prohibit any invitation to the public to subscribe for any of its shares or debentures. This does not prevent a private company from offering additional shares to existing members, but it does clearly limit its prospect of raising capital.

Under favourable circumstances institutional investors sometimes include in their investment folios a proportion of unquoted securities in industrial companies, provided there is the attraction of a higher

return than is normally available on equivalent quoted securities and on condition, for instance, that the company will at its own expense apply within a fixed period of, say, not more than two or three years for a Stock Exchange quotation. Similarly, stockbrokers who specialize in new issues can sometimes place unquoted shares with their clients where an official quotation is probable in the near future. In some cases insurance companies may subscribe for unquoted preference shares redeemable over a period of fifteen to twenty years under favourable circumstances, for example, in the case of an old-established company which has had satisfactory dealings with the insurance company over a period of years. Institutional buyers of shares are normally non-exempt companies within the meaning of the Act, and as an exempt private company loses the privileges of exemption when it makes an issue of shares to a non-exempt company, its accounts are thereafter open to public scrutiny at the Registry of Companies. Incidentally, with the continued growth in pension funds and the need which often arises after the initial stages to find a proportion of investments giving higher yields than gilt-edged securities, more funds are becoming available from this source through brokers and finance houses.

Company Promoters

The promoters of a company are those persons who undertake to form a company and set it going and who take the necessary steps to accomplish that purpose, although a person may in law be a promoter who takes only a relatively minor part in the promotion proceedings. The term does not, however, include any person by reason of his acting in a professional capacity for persons engaged in securing formation of the company. As the promoter of a company stands in a fiduciary position with the company, he may not, either directly or indirectly, make any profit out of the promotion proceedings without the knowledge and consent of the company. The company can compel him to account for any secret profit which becomes revealed, with interest from the time when he received the profits, whether or not he was acting for the vendor or other promoters or selling his own property to the company. The liability of promoters is joint and several. The law requires that the truth be disclosed by promoters to those who are induced to become shareholders. Failure as regards disclosure on the part of a promoter who sells his property to the company is sufficient cause for the sale to be set aside at the instance of the company. Where rescission is no longer possible, the promoter may be liable for damages to the company, measured by the difference in value of the price paid by the company and the true value of the property when purchased. The remuneration of promoters may take various forms. The promoters of a company may be content to accept an option on deferred or founders' shares with the hope of making a capital profit in due course. In other cases, they may actually accept such shares in lieu of cash payment for expenses incurred by them in forming the company and setting it going. Alternatively, they may accept a commission from the vendor of the property taken over by the newly formed company, or they may actually purchase the proposed assets and, subject

to a full disclosure of the facts, sell them to the company which they promote. It is well established that a promoter is only able to recover from the company amounts which he has paid in preliminary expenses on proof of a contract by the company to pay.

CHAPTER 26

FINANCING PROCEDURES

WHERE new money is required by a public company, the arrangement may take the form of an offer for subscription by prospectus, or an offer to existing shareholdings, or an offer for subscription by tender. In other cases, the procedure is usually by offer for sale, or by placing, or by an introduction to the Stock Exchange. The form of security adopted for issues by public subscription necessarily varies with changing market conditions. In the case of provincial companies, quotations may be applied for on the local Stock Exchange and/or on the London Stock Exchange. The financial house which sponsors the operation is in the best position to advise regarding the precise method of procedure to adopt. Usually, the public require a percentage yield by way of income on capital increasing in the following order : debenture stocks with sinking fund ; unsecured notes ; preference shares ; preferred, ordinary and deferred shares. The yield required on preference shares varies according to whether or not participating or redemption rights are involved and otherwise according to their terms of issue.

Treasury Control

It is illegal, without Treasury consent, except where special or general statutory exemptions apply, for a company to borrow money, or to raise money by the issue or re-issue of its securities, to an amount in excess of £50,000 anywhere in any period of twelve months. In this connection, borrowing includes arrangements whereby money borrowed or due under a security, other than interest or dividends, is payable at a later date than that fixed, except as to arrangements made to postpone payments of instalments to a date not later than the date fixed for payments of the last instalment. The term includes also arrangements by which the price of any property is allowed to remain unpaid but charged on the property, except as to goods sold in the ordinary course of business or when any undertaking is sold to a private company. The Treasury may at any time withdraw the benefit of the exemption limit of £50,000 from any particular company or person. Anyone contravening the statutory requirements is subject to heavy penalties, but his rights in the transaction are not affected by the contravention.

New companies need not obtain Treasury permission until the £50,000 exemption limit becomes applicable. Shares issued to subscribers of the Memorandum of Association are exempted where the total consideration does not exceed £500. In determining the general exemption limit of £50,000, only the net amount involved in replacements and postponements is taken into account in aggregating previous transactions, and loans raised and repaid within the previous twelve months are disregarded.

Loans from a bank in the ordinary course of business do not require Treasury consent, nor does the issue to banks, or their nominees, of securities for overdrafts or advances where these were not granted, or made on terms, or in the expectation that repayment would be made to any extent by the issue of securities, or the transfer of securities issued after the loan was made. Treasury consent is not required where a parent company acts as banker to its subsidiaries and so conserves liquid resources by allocating the use of surplus funds within the group as circumstances require, provided the loan is repayable on demand or within six months and is wholly unsecured or is secured only by a bill of exchange payable on demand or at a fixed period up to six months after sight or by a promissory note payable not more than six months after the borrowing. A loan covered by a guarantee is not here regarded as unsecured.

Exemption also applies to the issue by a private company of fully paid shares to the vendors, or their nominees, of any undertaking sold to the company, provided the money raised is cash forming part of the undertaking's assets or cash paid to the vendors towards the purchase price. In respect of securities issued in connection with the amalgamation and reconstruction of companies, Treasury consent is not required for the issue of fully paid shares by a company in exchange for others in another company, where no new money is involved, and one of the companies is to be wound up. Nor is consent required to issues made for the sub-division of securities into smaller denominations, or for their consolidation into larger denominations, or their consolidation into stock, or into shares of equal nominal value, in cases where no new money is involved, but consent is required to exchange or substitute new securities for redeemable securities already issued. Capitalization of profits and reserves and subsequent scrip issue may be made without Treasury consent provided the amount involved does not exceed £50,000 within any period of twelve months. Profit-sharing schemes enjoy total exemption from the need to obtain Treasury consent as regards any issue of fully paid shares made, provided at least three-fourths of the total number of employees of the company are entitled to participate in the scheme and their wages are based on the standard rates of pay appropriate to their industry.

Offers for Subscription by Prospectus

When a company seeks to raise funds by a direct appeal to the public, a prospectus is issued offering shares, debentures or stock in the company for public subscription. The term "prospectus" covers "any prospectus, notice, circular, advertisement or other invitation, offering to the public for subscription or purchase any shares or debentures of a company". The word "public" in this respect includes any section of the public, whether selected as members or debenture-holders of the company concerned or as clients of the person issuing the prospectus or in any other manner. This is not to be taken, however, as requiring any offer or invitation to be treated as made to the public if it can properly be regarded, in all the circumstances, as a domestic concern of the persons making or receiving it, thus ensuring

that the prospectus requirements of the Act do not unduly interfere with the domestic arrangements of a company.

A prospectus issued by or on behalf of a company or intended company offering to the public for subscription or purchase any shares or debentures of the company must be dated and a copy of the prospectus must be delivered to the Registrar of Companies for registration with the various consents and other documents as specified in the Act. Normally, every prospectus issued must state the matters specified in the Fourth Schedule to the Act, and a condition requiring or binding an applicant for shares in or debentures of a company to waive compliance with any of these requirements, or purporting to affect him with notice of any contract, document or matter not specifically referred to in the prospectus, is void. An exception is made in cases where the offer, renounceable or otherwise, is limited to existing shareholders or debenture-holders of the company or where the offer relates to shares or debentures which are or are to be in all respects uniform with those previously issued and being dealt in or quoted on a stock exchange prescribed by statutory instrument issued by the Board of Trade. Preferential treatment is often given to applications from existing shareholders by supplying special pink forms for this purpose. Moreover, a prospectus issued generally need not comply with the requirements of the Fourth Schedule if a certificate of exemption has been granted by a prescribed Stock Exchange, that compliance would be unduly burdensome having regard to the proposals as to the size and other circumstances of the issue and as to any limitations on the number and class of persons to whom the offer is to be made. The requirements of the Stock Exchange are, however, in no way limited.

Underwriting.—There is always a risk that even an attractive prospectus offering shares for public subscription may, owing to the occurrence of some unforeseen contingency, fail to ensure that the minimum subscription stated in the prospectus will be obtained. Special circumstances, too, such as an urgent need to cover repayment of a maturing loan, may require that the success of an issue will be guaranteed. Underwriting insures against the risk that securities offered for subscription will not be taken up. In order, therefore, to guarantee that the whole or a specified part of the offer is subscribed, it is usual to underwrite the issue, so that the underwriters will take up and pay for any balance which is not taken up by the public, or will find some other person who will do so. An underwriter is thus an investor who undertakes for a consideration to take up and pay for any agreed securities which are not subscribed for in the normal way. The Act does not specify the financial status of underwriters, the realistic assumption being that the vigilance of the Stock Exchange will ensure that permission to deal is given only in proper cases. Underwriting is an essential insurance to the new money market, although it may seem sometimes that payment is made for nothing. It is a service which necessarily takes the rough with the smooth, for one unsuccessful issue can easily eliminate the profits received from several previous issues.

As a means of spreading the risk, sub-underwriting may be arranged

on a basis similar to that which exists between the company and the underwriter, except, of course, that the underwriter pays less commission than the amount he receives from the company. An over-riding commission may be paid to primary underwriters to ensure that the issue is fully and properly underwritten. If the primary underwriter himself covers the issue he retains both commissions, but the intention of the arrangement is to enable him to pass on the normal underwriting commission where others actually fulfil this function. The payment of over-riding commission may be regarded as a sign of weakness in an issue.

Companies are expressly authorized by the Act to apply any of their shares or capital money in payment of underwriting commission if the payment is authorized by the Articles and the commission does not exceed 10 per cent of the issue price of the shares or the amount or rate authorized by the Articles, whichever is the less, and disclosure is made of the rate or amount per cent of the commission paid or agreed to be paid. A company may also pay a commission on shares subscribed for absolutely, subject to the conditions mentioned. Thus the rule that shares may not be issued at a discount is further relaxed. The financial result is the same as if a limited discount were allowed on shares issued, whereas the formal position is that the shares are fully paid by the subscriber and the commission is paid by the company from the funds thus provided. Transactions are not allowed which involve the illegal issue of shares at a discount in apparent compliance with the statutory requirements as to commissions. Disclosure has to be made in the prospectus where shares are offered for public subscription, or, where the public is not concerned, either in a statement in lieu of prospectus or of similar form delivered to the Registrar of Companies, before a payment of the commission. Disclosure is also required in any circular or notice, other than a prospectus, issued to invite subscriptions.

The Act has not affected the freedom of companies to pay commissions otherwise than out of capital, so that a company may pay underwriting commissions out of profits. Moreover, the statutory restrictions do not apply to the underwriting of debentures or debenture stock. Although there is no provision to prevent the payment of a commission in any form in which it could lawfully have been paid previously, such as by granting an option to take shares at a special price or even to take up further shares at par within a limited period notwithstanding the shares are worth more than par, the Stock Exchange would probably require underwriting arrangements to be made in conformity with the statutory requirements in cases where permission to deal is sought. When permission is sought for shares underwritten to be dealt with on the London Stock Exchange, the Council of the Stock Exchange requires to be satisfied as to the underwriting arrangements and these must be mentioned in the prospectus or, in other cases, in the advertisement of the offer for sale or placing.

There is need to differentiate between payment for an underwriting commission and brokerage, for a company cannot lawfully pay what is really commission whilst calling it a brokerage, although nothing in the Act affects the power of any company to pay such brokerage as it

might lawfully have paid before the payment of underwriting commission received statutory sanction in the Act. The exemption of brokerage from the restrictions applies only where the payment is made to a person carrying on business as broker. Usually a broker is paid brokerage commission on shares allotted as a result of applications being received which bear his stamp, at a rate varying from a penny per share upwards, according to circumstances, although doubt has been expressed whether the rate can properly exceed $2\frac{1}{2}$ per cent of the amount involved. Brokers obtain a number of application forms stamped with their names and distribute these to their clients and the company pays brokerage accordingly as applications for shares are received. Brokerage is not usually covered by a contract, as in the case of underwriting commission, but an announcement is usually made of the brokerage offered to stockbrokers or jobbers applying as agents.

Minimum Subscription.—In order to ensure that a public company begins business with adequate capital resources, the Act provides that in a first allotment of shares offered for public subscription, no allotment may be made unless the minimum subscription, exclusive of any amount payable otherwise than in cash, has been subscribed and the sum payable on application for the minimum subscription has been paid to and received by the company. The amount payable on allotment on each share must be not less than 5 per cent of the nominal value of the share. If the minimum subscription is not subscribed on the expiration of forty days after the first issue of the prospectus, the application monies must be repaid without interest ; but, if it is not repaid within forty-eight days, the directors are jointly and severally liable to repay the money with interest at 5 per cent after the forty-eighth day. But a director is not to be held liable if he proves that the default in the repayment of the money was not due to any misconduct or negligence on his part.

An allotment made by the directors before the minimum subscription is obtained is voidable at the instance of the applicant within one month of the date of the statutory meeting, or within the same period after the date of allotment in cases where the company is not required to hold a statutory meeting, *e.g.* a private company, or the allotment is made after the statutory meeting. Provided proceedings are commenced within two years after the date of allotment, a director who knowingly contravenes or is a party to the contravention of these provisions with respect to allotment is liable to compensate the company and the allottee respectively for any loss sustained.

The Contractual Position.—It is normally unlawful to issue any form of application for shares in or debentures of a company, unless the form is issued with a prospectus which complies with the requirements of the Act, except where issued in connection with a *bona fide* invitation to a person to enter into an underwriting agreement with respect to the securities or where the securities are not to be offered to the public.

The contractual position in the case of a prospectus is that the company simply advertises its willingness to receive offers from the public for its shares, for which purpose an application form is to be completed and forwarded to the company for either acceptance or

refusal. A contract comes into being when the company agrees to allot either all or a part of the number of shares or debentures for which application has been made.

As a prospectus is an invitation to the public to take shares on the faith of representation so made to them, those who issue a prospectus must not make untrue statements, or omit anything known to them as to make what is actually stated misleading. The public ought to enjoy the same opportunity of judging all material facts bearing on the issue as the promoters themselves possess. The Act provides that a statement included in a prospectus is to be deemed to be untrue if it is misleading in the form and content in which it is included. A statement is deemed to be included in a prospectus if it is contained in, or in any report or memorandum appearing on the face of, the prospectus, or is by reference incorporated in or issued with the prospectus. Accordingly, if a statement, true in itself, is made misleading by the omission of some other relevant information, that statement is to be considered as untrue. The company is responsible for the statements issued in a prospectus when it was issued by the company or under its authority. Neglect of proper disclosures in a prospectus may give those who have been induced to take up shares or debentures the right to rescind the contract and obtain restitution of the moneys paid under the contract with interest, or to sue for compensation or damages the persons who have issued the prospectus or who are in law responsible.

The rule is that a contract which is induced by a material misrepresentation of fact, innocent or otherwise, is voidable at the option of the person deceived. Therefore, where securities are allotted on the faith of a prospectus containing a misrepresentation, or on the faith of misrepresentation made by agents of the company and not contained in a prospectus, the person deceived is entitled to repudiate the securities and take back his money, provided, however, he elects within a reasonable time to rescind the contract, or does not impliedly ratify it by some act or omission on his part. For as his name is on the register of the company, he is held out as being a member and a contributor to its assets. An action for deceit may be brought where fraud can be proved. The Act also places a *prima facie* responsibility on directors, promoters and every person who has authorized the issue of a prospectus to pay compensation to persons who have subscribed for shares or debentures on the faith of the prospectus for the loss or damage they have sustained by reason of any untrue statement included in the prospectus. In addition, the directors, managers or other officers of a public company may be criminally prosecuted if a false impression is given by the prospectus as a whole although there is no statement in it which is actually false when taken alone. The liability of a director in damages does not cease in this respect where the right against the company is barred by the liquidation of the company or otherwise.

When a prospectus includes a statement purporting to be made by an expert, including an engineer, valuer, accountant or any other person whose profession gives authority to a statement made by him, it must not be issued unless the expert has given, and has not before delivering a copy of the prospectus for registration withdrawn, his

written consent to its issue with the statement included in the form and context in which it is included, and a statement that he has given and has not thus withdrawn his consent appears in the prospectus. Such an expert may be liable as a person who has authorized the prospectus in respect of any untrue statements purporting to be made by him as an expert. He is not to be held liable merely because he has given that consent, except in respect of an untrue statement purporting to be made by him as an expert. Nor is he liable upon proof that he withdrew his consent in writing before delivery of a copy of the prospectus for registration or before allotment where he gave reasonable public notice of his withdrawal, or that, being competent to make the statement, he had reasonable grounds to believe and did in fact believe up to the date of allotment that his statement was true.

In order to discourage share pushing, the Act requires elaborate statements to be made in the prospectus so that a person need not subscribe for securities in a company without learning all the necessary facts about its affairs. In addition to these requirements, which are summarized below, the Prevention of Fraud (Investments) Act, 1939, prohibits any persons who are unlicensed or not exempted within the meaning of the Act from carrying on in any way the business of dealers in securities, whether as principals or agents. In particular, it is a criminal offence for a person to enter into or offer to enter into any agreement for or with the object of acquiring, disposing of or subscribing for, or underwriting securities by false statements, promises or forecasts which he knows to be misleading, false or deceptive or by any dishonest concealment of material facts. The distribution, or possession for purposes of distribution, of "circulars" inviting offers for securities is illegal, except in certain cases. The restrictions so far as industry is concerned do not apply to the distribution in accordance with the Companies Act, 1948, of a prospectus or of a form of application issued with a prospectus to invitations issued in good faith to enter into underwriting agreements. Likewise the restrictions are inapplicable to circulars distributed by or on behalf of a company to shareholders, debenture-holders, employees or creditors in respect of its securities and those of its subsidiaries and those made by authorized dealers in securities.

Contents of Prospectus.—The Fourth Schedule of the Act covers, as already mentioned, the matters to be disclosed in a prospectus issued by a company to the public. Except as to a prospectus issued more than two years after the date at which the company is entitled to commence business, disclosure is required of the name, description and address of each present and proposed director and of any share qualification or other provision contained in the Articles regarding his remuneration. In addition, full particulars are required of any interest which he has, either personally or as a member of a firm of which he is a partner, in the promoting of, or in the property proposed to be acquired by, the company. A statement is also required of all sums which any person has paid or agreed to pay to him or to his firm in cash, shares, or otherwise, for services rendered in the promotion or

formation of the company, or to induce him to become or to qualify himself as a director.

As regards any material contract, actual or proposed, for the purchase, acquisition or lease of property, other than a contract entered into in the ordinary course of the company's business without relevance to the issue and to which the issue is irrelevant, whereof the purchase price is to any extent payable from the proceeds of the issue or the contract has not been completed at the date of issue of the prospectus, a statement is required of the amount payable in cash, shares, or debentures to each vendor, specifying also any amounts payable for goodwill, together with the names and addresses of the vendors or lessors and the amount so payable to each of them, including those concerned where the company is a sub-purchaser or sub-lessee. If any of the vendors or lessees are a firm, the members of the firm are to be regarded as one. In addition, short particulars are required of any transaction relating to the property completed within the two preceding years in which any vendor or lessor who is or then was a promoter, director or proposed director of the company had any direct or indirect interest. Any person is deemed to be a vendor who has entered into any contract, absolute or conditional, for the sale or purchase or for any option of purchase, of any property to be acquired by the company where the purchase money is not fully paid at the date of issue of the prospectus and is to be paid or satisfied wholly or partly from the proceeds of the issue covered by the prospectus, or the contract depends for its validity or fulfilment on the result of that issue.

The time of opening the subscription list has to be stated. There must also be disclosed the amount payable on application and allotment on each share as regards the present allotment and the amount offered for subscription, the amount actually allotted and any amount paid on each of any previous occasions within the two preceding years. Disclosure is also necessary of the number and amount of shares and debentures which, within the same period, have been issued or agreed to be issued, as fully or partly paid up otherwise than in cash, the extent to which they are so paid up, and, in either case, the relevant consideration. If the share capital is divided into different classes of shares, there is need to state their respective capital, dividend and voting rights. The number of any founders' or management or deferred shares has also to be shown, as well as the nature and extent of the interest of their holders in the profits and property of the company. In regard to actual or prospective options to subscribe for any shares in or debentures of the company, disclosure is required of their number, description and amount, the period during which the option is exercisable, the consideration and price involved and the names and addresses of the beneficiaries, or, if the option is given to existing shareholders or debenture-holders as such, the relevant shares or debentures. The disclosure applies also to shares or debentures acquired from a person to whom they have been allotted or agreed to be allotted with a view to his offering them for sale.

Where shares are offered to the public for subscription, particulars must also be given as to the minimum amount which the directors

consider must be raised by their issue to provide wholly or partly the sums required, and, in the latter case, the source and amount of any other provisions to cover the purchase price of any property purchased or to be purchased which is to be defrayed wholly or partly from the proceeds of the issue ; any preliminary expenses payable by the company ; any commissions payable to any person in consideration of his agreeing to subscribe for, or of his procuring, or agreeing to procure subscriptions for, any shares in the company ; the repayment of any monies borrowed by the company in respect of any of the foregoing matters and working capital.

Disclosure has also to be made of the amount or rate of any commission paid within the two preceding years, or payable, otherwise than to sub-underwriters, for subscribing or agreeing to subscribe, or procuring or agreeing to procure subscriptions for any shares in or debentures of the company. If the prospectus is issued within two years from the date at which the company is entitled to commence business, disclosure of the actual or estimated amounts of preliminary expenses and expenses of the issue respectively is also required, with the names of the persons making the payments. In addition, disclosure is required of any intended or actual benefits, including those made in the two preceding years, to any promoter, with the consideration for the payment or the giving of the benefit.

There has to be stated in the case of a company which has been carrying on business, or of a business which has been carried on for less than three years, the length of time during which the relative business has been carried on. In addition, disclosure is required of the parties to, dates of and general nature of every material contract, not being one entered into in the ordinary course of the business carried on or intended to be carried on by the company, or a contract entered into more than two years before the date of issue of the prospectus. The names and addresses of the auditors (if any) of the company have also to be stated in the prospectus.

In addition to all this information, the Act requires that the prospectus shall contain certain professional reports. The report of the auditors of the company must deal with the profits or losses of the company, or of those of any business to be in any way and to any extent acquired from the proceeds of the issue, for each of the five years immediately preceding the issue of the prospectus, or for such less number of years as the company has been in business. The rate of dividend paid on each class of share has to be stated for each of these years, giving particulars of each class on which dividends have been and have not been paid. If no accounts have been compiled for any part of the period of five years ending on a date three months before the prospectus is issued, the fact must be stated. Where the company has subsidiaries, the report, besides dealing with the company's profits or losses, must, except as regards minority interests, deal either with the collective or with the individual profits and losses of the subsidiaries. Instead of dealing separately with the company's profits or losses, the report may deal as a whole with the profits or losses and, so far as concerns members of the company, with the combined profits or losses of the subsidiaries. The report has also to deal with the assets and liabilities

of the company as shown by its last balance sheet and, if the company has subsidiaries, to deal either with the whole of the combined assets and liabilities of the subsidiaries, with or without those of the company, or individually with the assets and liabilities of each subsidiary, indicating amounts appropriate to minority interests. A report by an authorized firm of accountants must also be included if the proceeds of the issue are to be wholly or partly applied in any way to the purchase of shares in another company which will consequently become its subsidiary. The report has to deal with the assets and liabilities of the other company as shown in its latest balance sheet and the hypothetical amount representing the interests of the company in the profits and losses of the other company and the allowance to be made for minority interests in the assets and liabilities of the other company, as if the company had held the shares during the five years immediately preceding the issue of the prospectus. Where the other company has subsidiaries, the report must deal also with the profits or losses and the assets and liabilities of the other company and its subsidiaries in the same manner as indicated for the company itself and its subsidiaries.

Allotment of Shares and Debentures.—No allotment of shares or debentures may be made or proceedings taken on applications made in pursuance of a prospectus issued generally until the time of the opening of the subscription lists, that is, until the beginning of the third day, or such later time as may be specified in the prospectus, after that on which the prospectus is first so issued as a newspaper advertisement or otherwise if not issued through this medium. A contravention of this provision does not, however, affect the validity of any allotment made ; but it does make the company and any officer who is in default liable to a heavy fine.

The “ stag ” is the subscriber to a new issue who subscribes not with the intention of taking up any shares allotted to him as a permanent investment, but in order to sell them at a profit during initial dealings. In an attempt to limit abuse, the Act provides that an application for shares or debentures made in pursuance of a prospectus issued generally is not revocable until after the end of the third day after the time of opening of the subscription lists, unless either some person responsible for the prospectus gives a public notice excluding or limiting his responsibility before the end of the third day, or a certificate of exemption has been given by a Stock Exchange relative to the particular offer.

Where a prospectus, whether issued generally or not, states that application has been or will be made for permission for the shares or debentures offered to be dealt in on any Stock Exchange, any allotment made on an application in pursuance of the prospectus is void and the applicant is entitled to the return, without interest, of all monies paid by him, if, either, the permission is not applied for before the third day after the first issue of the prospectus, or, if permission has been refused within three weeks from the closing of the lists or such longer period not exceeding six weeks as may, within the first three weeks, be notified to the applicant for permission by or on behalf of the Stock Exchange. An agreement by an underwriter to take shares is deemed to be an application made in pursuance of the prospectus. If the money is not

repaid within eight days after the company becomes liable to repay it, the directors are jointly and severally liable to repay it with interest at 5 per cent per annum after the end of the eighth day, but a director is not to be held liable if he proves that the default in repayment was not due to any misconduct or negligence on his part. All money so received has to be kept in a separate bank account so long as the company becomes liable to repay it as stated and the company and every officer in default is liable to be heavily fined.

Statements in Lieu of Prospectus.—When a public company having a share capital has not issued a prospectus in connection with its formation or has issued such a prospectus without proceeding to allot any of the shares offered to the public for subscription, it is obliged, at least three days before any allotment of shares or debentures is made, to register a statement in lieu of prospectus with the Registrar of Companies in accordance with the Fifth Schedule of the Act, which requires a disclosure of facts to be made almost to the extent required in the case of an ordinary prospectus.

Several reasons may require this procedure. For example, a public company may not have been able to allot shares in pursuance of a prospectus because of refusal of an application for permission to deal on a Stock Exchange. Similarly, if the minimum subscription has not been subscribed on a proposed new issue of shares which have not been underwritten, the company cannot proceed to allotment and may therefore endeavour to raise the money privately. A statement in lieu of prospectus must be delivered for registration before any shares or debentures may be allotted in such a case. If a private company alters its Articles by excluding the statutory contents required in the case of a private company and so ceases to be a private company, a statement in lieu of prospectus must be delivered within fourteen days for registration to the Registrar of Companies unless, within the same period, either a prospectus is registered which fully complies with the Fourth Schedule to the Act or a prospectus is issued under a certificate of exemption and so deemed to comply with the Fourth Schedule.

A public company having a share capital, registered since 1st July, 1908, which has not issued a prospectus inviting the public to subscribe for its shares is restricted from commencing business or exercising any borrowing powers unless a statement in lieu of prospectus has been delivered to the Registrar of Companies. In addition, every director must have paid to the company the amount due on application and allotment of shares for which he is liable to pay in cash. A statutory declaration must also have been delivered to the Registrar of Companies certifying compliance with these provisions, whereupon the Registrar shall certify that the company is entitled to commence business.

Contravention of the requirements of the Act in respect of a statement in lieu of prospectus makes the company and any director concerned liable to penalties and any person who authorizes the delivery of a statement for registration which contains any untrue statements may also be liable. Any allotment made in contravention of the provisions of the Act relating to statements in lieu of prospectus is voidable at the instance of the applicant within one month from the

holding of the statutory meeting, or otherwise one month after the date of allotment. Any director who contravenes or permits or authorizes the contravention of the provisions of the Act with respect to allotments is liable to pay compensation for any loss, damages or costs on the part of the company or the allotter.

Stock Exchange Requirements.—Careful attention is necessary to ensure that a public issue of securities conforms with the requirements of any recognized Stock Exchange on which a quotation is required. The rules of the London Stock Exchange permit dealings only in securities which are quoted in the Official List or in the List of Supplementary Lists of the Stock Exchanges affiliated to the Council of Associated Stock Exchanges. The issue should not only be one which is likely to commend itself to the Committee on Quotation, but it must comply with the published requirements of the Council of the Stock Exchange, for, otherwise, permission to deal will be refused. There is no appeal against the absolute discretion exercised by the Stock Exchange in this respect. These regulations of the Stock Exchange are designed to protect the interests of the general public as well as its own members, for the continued success of the Stock Exchange in making the market for shares and other securities is an expression of public confidence in its integrity and efficiency.

Applications are made to the Secretary of the Share and Loan Department and should comply with the requirements of the Council of the Stock Exchange. The prospectus relating to the issue must be advertised in full in at least two leading London newspapers, unless the issue is made only to existing shareholders or debenture-holders of the company whose capital is already quoted, and must comply with the requirements of the Stock Exchange. For instance, the directors are required to state in the prospectus that in their opinion the working capital available is sufficient, or, if not, how it is proposed to provide the additional amount which they consider necessary. Where the proceeds of the issue are to be used in any way or to any extent in the purchase of a business or of shares in a company which will in consequence become a subsidiary, a report has to be given by qualified accountants regarding the profits or losses of each such business or subsidiary for the ten completed financial years preceding the issue of the prospectus or for the whole of any less period of its existence. The report must include a statement of the aggregate emoluments paid to the directors by the company during the last period for which the accounts have been made up and disclose any difference from the amounts payable under the arrangement in force at the date of the prospectus. A statement is also required of any alteration in the share capital during the preceding ten years and the names of holders of any substantial or controlling beneficial interest in the capital of the company and the amount of their holdings.

Rights Issues

Additional capital may be obtained by granting existing shareholders the right to subscribe for a new issue of shares or other securities on a

specified basis by issuing to them Letters of Rights. For example, if £1 shares of the company are quoted on the Stock Exchange at £3 each and each shareholder is given the right to subscribe for additional shares on a 1 : 3 basis at £2 each, the rights have a nominal value of 5s. per share on the basis of the following calculation.

	£	s.	d.
Cost of three shares to obtain rights to secure one share at £2	=	9	0 0
Cost of the additional share	=	2	0 0
Total outlay on four shares	=	11	0 0
Market price of one existing share	=	3	0 0
Average outlay per share $\frac{11}{4}$	=	2	15 0
Nominal value of rights	=	5	0

Alternatively, the nominal value of rights may be calculated as a proportion of the difference between the stated prices of the old and new shares, the proportion being expressed by the ratio of the new number of shares to the sum of the numbers of the old and new shares, *i.e.*:

$$\begin{aligned} \frac{\text{New}}{\text{Old} + \text{New}} \times \text{difference in price} &= \frac{1}{3 + 1} \times (60s. - 40s.) \\ &= \frac{1}{4} \times 20s. = 5s. \text{ as the nominal value of rights.} \end{aligned}$$

Thus the Stock Exchange calculates rights in respect of each existing share. When dealings begin in the new shares, dealers make the existing shares ex rights. For example, the old shares may be quoted at 60s. less 5s. rights = 55s., whilst the new shares may be quoted at 15s. premium (*i.e.*, $5s. \times \frac{3}{1}$) nil paid, to which the payment of 40s. must be

added, bringing the total price of the new shares to 55s., the same price as the old shares ex rights, assuming market conditions remain unaltered and ignoring dealing expenses. The Letter of Rights thus acquires a nominal market value which, in practice, may be wholly or partly realized, dependent upon market supply and demand, by selling the Letters of Rights on the Stock Exchange after signing the Letter of Renunciation which is usually attached. These transactions have the advantage of avoiding transfer fees and stamp duty. Accordingly, the new shares may be quoted at a little higher price than the old shares.

The issue of shares on a rights basis below the current market price at the date of issue gives equal treatment all round by putting a price on the "rights" to the new shares and permits market adjustments whilst guarding against the chance of the market price dropping below the issue price before the date on which the offer closes. Market sentiment is, however, an important factor to be considered in practice, for when markets are in an optimistic mood an attractive rights issue is usually welcomed, whereas, when markets are dull, the mere suggestion of a rights issue tends to depress the price of the

existing shares often to an unwarranted extent. The reduction in share prices may be relatively high if the purpose of the rights issue is merely to replace stock-in-trade and finance work-in-progress at inflated prices rather than to provide funds for real development.

The issue of shares by way of rights below current market price is, in fact, equivalent to an issue of additional shares at current market price combined with a scrip issue. For example, assume a company which has issued nominal capital of £90,000 in ordinary £1 shares having a current market value of 60s. per share. The result is the same whether the company makes a 1 : 3 rights issue at a price of 40s. per share, or an issue of 20,000 shares at the full market price of 60s. a share with a scrip issue of 10,000 shares on a 1 : 9 basis.

<i>Rights Issue</i>		<i>Equivalent Issue</i>	
30,000 additional £1 shares at £2	= £60,000	20,000 additional £1 shares at £3	= £60,000
		10,000 shares as 1 : 9 scrip issue	= Nil
		<u>30,000</u> Shares	= <u>£60,000</u>

Therefore, the rights issue itself does not really confer any special benefit on the shareholder, as it is merely an indirect way of making a scrip issue which covers the existing assets by a greater number of shares of reduced intrinsic value, so that the position of each shareholder remains unchanged as regards his real interest in the company. Although a rights issue may then be regarded as containing an element of what the Companies Act describes as "fully-paid bonus shares," it is incorrect to describe such an issue as being *ipso facto* on favourable terms, or as containing a real element of bonus as if shareholders were being given a free gift of something for nothing. Although the Companies Act refers to "fully-paid bonus shares," the Stock Exchange has now adopted the term "capitalization issue," which, for brevity, is referred to in the financial press as a "scrip issue."

The assumption that the nominal value of the rights will, in fact, be realized is generally valid under normal market conditions, provided the company has not given any indication of prospective changes regarding future dividends and the market has no other reason to reconsider the dividend yield basis to be used in valuing the shares after the rights issue has been made.

On the assumption of gross dividend at the rate of 24 per cent on the nominal capital of £90,000, the amount required per annum for dividends would be £21,600, representing 8 per cent on the market value of the original capital priced at 60s. per share. This would be the assumed rate on the new money, the dividend on which would require £4,800. The revised dividend would thus total £26,400 on a revised nominal capital of £120,000. The prospective dividend rate would thus be 22 per cent. On this basis, the market price of the shares would be $\frac{22}{24} \times 60s. = 55s.$ This figure may also be calculated as $\frac{22}{8} \times 20s. = 55s.,$ on the basis that the new rate of dividend on the

revised nominal capital is 22 per cent, giving a dividend which, when capitalized on an 8 per cent yield basis, gives a market value for each share of 55s. The position of an original shareholder who (A) takes up his rights and (B) sells his rights, and (C) the position of the person who buys the rights, may be illustrated as follows:

(A) <i>Rights Taken Up</i>			(B) <i>Rights Sold</i>			(C) <i>Rights Acquired</i>		
		£			£			£
150 shares at 60/-	=	450	150 shares at 60/-	=	450	50 shares at 40/-	=	100
50 shares at 40/-	=	100	Less rights at 5/-	=	37/10/-	Add premium at 15/- per share	=	37/10/-
---		---			---			---
200	Total	<u>550</u>	Total		<u>412/10/-</u>	Total		<u>137/10/-</u>
---		---			---			---
Market value of 200 shares at 55/-	=	<u>£550</u>	Market value of 150 shares at 55/-	=	<u>£412/10/-</u>	Market value of 50 shares at 55/-	=	<u>£137/10/-</u>

Thus no real "element of bonus" or anything in the nature of "advantageous terms" arises as often stated when rights issues are made.

If the company expressed its intention to maintain the dividend at 24 per cent on the new shares, the effect would be equivalent to a decision to increase the dividend rate on the old shares from 24 per cent to 32 per cent. It is the improved dividend policy and not the fact of the rights issue which the shareholders would regard as conferring an advantage. The amount now required for dividends would be £28,800, as against £21,600 previously. If the market considered the dividend could undoubtedly be maintained, the yield basis for valuing the shares would remain at 8 per cent to give a market value of $\frac{100}{8} \times £28,800 = £360,000$, which would give a market value of 60s. per share as originally, *i.e.* :

$$\text{or, } \frac{\text{New dividend}}{\text{Former dividend}} \times \frac{\text{Original capital}}{\text{Revised capital}} \times \frac{\text{Former share price}}{\text{Revised share price}} =$$

$$\frac{28,800}{21,600} \times \frac{90,000}{120,000} \times 60/- = 60/-$$

If the market rather doubted whether the company could, in fact, maintain the increased dividend payment, then a slightly higher yield basis would be adopted in this case to cover the risk. If, for the purpose of exemplification, a revised yield basis of $8\frac{1}{3}$ per cent were adopted, the market value would be $\frac{100}{8\frac{1}{3}} \times £28,800 = £345,600$, equivalent to 57s. 7d. per share.

Clearly, shareholders are interested in knowing the purpose for which additional funds from the rights issue are required, the anticipated effect of the use of the monies on the company's earnings and the extent to which the new money is likely to satisfy the capital requirements of the company for a reasonable period. It is unfortunate, therefore, that the fullest information is not invariably provided. Industrial companies would do well to emulate the mining companies in giving all the

facts when circularizing shareholders regarding the proportion of shares to which they are entitled, or that is on open offer to them.

The circular sent to shareholders regarding the rights issue may either be accompanied by an allotment letter stating the number of shares allotted to the member, as in the case of an ordinary issue, or by a form of application inviting the shareholder to apply for additional shares in some fixed proportion to his existing holding. In the latter event, the company may issue a letter of rights with a letter of renunciation attached in order to enable the shareholder, if he so wishes, to dispose of his rights, for, as already stated, rights are marketable. In due course, the company issues a letter of allotment, either to the original shareholder, or to the person in whose favour the rights are renounced. Alternatively, where the rights value is relatively high, a form of renunciation may be supplied with a provisional allotment letter which provides that the allotment is effective only if the person to whom it is addressed signs the accompanying form. Pink-tinted forms giving preferential treatment are sometimes provided to enable any ordinary shareholders who wish to apply for any of the new ordinary shares that may be available, after providing for acceptance by ordinary shareholders under the offer contained in the letter of rights. Underwriting may be arranged in appropriate cases. Compliance with the regulations of the Stock Exchange relating to "Issues to existing shareholders by circular" is necessary in connection with an issue by way of rights.

Offer for Subscription by Tender

This method of subscription was usually encountered in the financing of public utility companies, so that since their nationalization this procedure is rarely used. In an offer of this kind, the borrower advertises his willingness to receive tenders for an issue of securities at a minimum price, so that the highest offers are usually accepted and the less attractive bids are scaled down or rejected altogether.

Offer for Sale

Offers for sale usually follow the purchase of shares in an established company by some agency such as a finance house, as when, for example, a substantial shareholding is disposed of in order to make provision for death duties. The shares acquired by the agency are subsequently offered to the public, either in their existing form or as a re-arranged capital, so that the intermediary obtains sufficient money to meet expenses and provide a profit on the deal. As the price at which the shares are purchased from the company has to be disclosed, the public is to a great extent safeguarded against excessive profit margins being made.

An offer for sale arises where a company allots or agrees to allot any of its shares or debentures with a view to all or any of them being offered for sale to the public. Where an offer for sale of shares or debentures is made to the public within six months after the allotment or agreement to allot, or where, at the date the offer is made, the whole consideration to be received by the company for the securities has not been received, the allotment or agreement to allot is *prima facie* deemed to be made with a view to an offer for sale to the public. The contractual position is the same as that which arises in the case of an issue

by prospectus, except that there is an intermediate vendor who offers the securities by means of an application form. The contract is made when the vendor accepts the offer made on the application form by returning a letter of acceptance. Offers are frequently underwritten.

The document called an "offer for sale" by which the offer to the public is made is for all purposes deemed by the Act to be a prospectus issued by the company, as if the securities had been offered to the public for subscription and as if the persons accepting the offer of any shares or debentures were subscribers for them, but without prejudice to any liability of those by whom the offer is made in respect of mis-statements contained in the document or otherwise in respect of the offer. The document must contain all the information required in a prospectus, with a statement of the net amount of the consideration received or receivable by the company in respect of the offer and the place and time at which the contract for the allotment of the securities may be inspected. The provisions of the Act relating to the signing and registration of a prospectus apply as though the persons making the offer were persons named in a prospectus as directors of a company.

These requirements do not, however, apply where the securities offered were not originally allotted or agreed to be allotted with a view to an offer for sale to the public in accordance with the extended definition already mentioned. If, however, the offer is actually made to the public, it must be accompanied by a prospectus when issued with an application form, for, as already noted, it is unlawful, except in the case of *bona fide* underwriting arrangements or private placings or unless the securities are identical with an existing quoted issue, to issue a form of application for shares unless it is accompanied by a prospectus which complies with the Act.

Stock Exchange requirements also need attention in an offer for sale, as with an issue by prospectus. Moreover, if a company proposes to distribute to persons other than its members, employees, or creditors, any circular concerning transactions in securities which is not within the definition of an ordinary prospectus, there is need to decide whether or not the circular is within the ambit of the Prevention of Fraud (Investment) Act, 1939.

The expenses of an offer for sale are usually higher than those of a placing, although the offer for sale appears to be the fairer method as regards the investment public. However, applications for shares in a successful offer for sale may be reduced or declined.

Placings

Like offers for sale, placings usually follow the purchase of shares in an established company by an intermediary, such as an issuing house, syndicate, or stockbroking firm who do placing and issuing business. They are normally in close touch with institutional investors and with one another and are usually brought into contact with companies seeking capital through the latter's professional advisors. There is a definite element of credit lending by the intermediary in terms of reputation rather than, as in the case of acceptance credits, in the form of cash.

Placings are appropriate where the circumstances are such as would

be relevant to an offer for subscription or sale to the public ; but, because the amount concerned is relatively small or the requisite response can be safely assumed, the expense of a general offer to the public is unnecessary. The disadvantage to the investing public is that the demand may well exceed the supply of shares and inflate the price. In order to protect the public, the Stock Exchange does not usually allow or encourage a placing to be made below a certain amount, and always insists that jobbers will secure a fair share of the nominal amount of shares placed, so that a public market in the shares can be made through stockbrokers. The marketing firm of brokers is required to make a complete disclosure to the Stock Exchange of all relevant facts concerning the proposed issue. The expenses incurred in a placing are usually less than in an offer for sale, but the procedure does not give equal opportunity to all those who seek an allotment.

Details of the company and its shares are advertised in accordance with Stock Exchange requirements, but without an application form. The requisite publicity is obtained by advertising a document called a " Notice of Information ". The statement is somewhat similar to a prospectus and is headed with the words : " This advertisement is issued in compliance with the Regulations of the Council of the Stock Exchange, London, for the purpose of giving information to the Public, with regard to the company." The directors collectively and individually accept full responsibility for the accuracy of the information given and confirm having made all reasonable enquiries that to the best of their knowledge and belief there are no other facts which would make any statement in the advertisement misleading. Underwriting expenses do not necessarily arise in a placing. However, the intermediary may enter into underwriting arrangements in order to obtain a reduction in the net cost of the shares. The intermediary pays at least par value for the shares, because of statutory restrictions on the issue of shares at a discount. He then resells the shares at a profit to sub-underwriters, who place them with their clients. A member of the public who wishes to obtain an allotment of shares may ask his broker to have his name " put down ", whereupon the broker will approach the jobbers who are to deal with the shares in order to obtain an allotment for his client at the price at which the shares are available to the public. In order to meet the needs of sub-underwriters, the issuing house may sign in blank the form of renunciation supplied with the allotment letters and request the company to supply in place of the original allotment letter a sufficient number of split letters of allotment for sub-underwriters. Permission to deal is required from the Stock Exchange before dealing in the market can take place.

The Act requires that any reference in the Act or in a company's Articles to offering shares or debentures to the public is to be construed as including a reference to offering them to any selected section of the public, whether selected as members or debenture holders or as clients of the person issuing the prospectus or in any other manner, except where the offer or invitation can properly be regarded as not being calculated to result, directly or indirectly, in their becoming available to persons other than those receiving the offer or invitation, or otherwise as being a domestic concern of the persons making and receiving it.

Accordingly, in cases where either a Stock Exchange quotation is to be applied for or renounceable allotment letters or letters of acceptance are to be issued, even if the number of recipients is restricted, the allotment can hardly be regarded as not being made without a view to some of the shares or debentures being offered for sale to a selected public. In such cases, therefore, it would appear that an offer to the public is involved, so that any document conveying the offer is to be deemed a prospectus issued by the company and as if the persons accepting the offer for any shares or debentures were subscribers for them, but without prejudice to any liability of the persons making the offer for misstatements contained in or relative to the documents.

Introduction to the Stock Exchange

This method of marketing securities may arise when the owner of a substantial unquoted shareholding in a public company wishes to establish a price for the shares and possibly realize some of them in due course. In some cases, the objective may be to create an improved status for future capital requirements, although an "introduction" need not involve fresh capital. In other cases, a re-arranged capital structure may be involved, or a new company may be formed to take over the assets of an existing company, in return for its shares issued to members of the existing company, before an "introduction" is made. An "introduction" may follow some time after a private placing. The main difference between a placing and an introduction is that brokers do not accept any commitment in an introduction.

In order to reduce the risk of starting a false market, the Stock Exchange ensures that the relative shares are fairly widely held, that public interest exists in the company sufficient to promote dealings in its shares and that enough shares are available to start a satisfactory market. If sufficient shareholders already exist, a quotation may be obtained without prior transactions taking place for this purpose. Alternatively, arrangements may be made with principal shareholders to make some of their shares available at a certain price within a specified time through market sources, so that the sale of the shares would be subject to the usual brokerage commission and to permission to deal and a Stock Exchange quotation being granted within a restricted period.

In the case of original issues, publication of an advertisement is required as for a placing in accordance with the rules of the Stock Exchange. As the advertisement neither contains an offer to anyone to buy shares nor any invitation to anyone to apply to the vendor shareholders to buy shares, and no document containing any such offer or invitation is issued by the broker, there is, in these cases, no prospectus.

Capitalisation or Scrip Issues

The capitalization of reserves and the subsequent issue of share scrip is merely a method of cleaning up a balance sheet by bringing the issued capital more into line with the capital employed in the business. So long as the shares of companies are required to have a nominal or par value, it is desirable that their value should, as far as

possible, represent the facts. When, in the case of successful and well-managed companies, the accumulation of savings in the way of retained profit and capital gains from various sources, such as share premiums, becomes unwieldy in relation to the amount of issued capital, both the rate of earnings and dividends may create a wrong impression by giving an appearance of excess earnings, whereas, in fact, they are merely a reflection of a sound financial policy. The scrip issue is a convenient means of correcting the apparent distortion due to reserves accumulating during periods of satisfactory trading, so that figures of assets are realistically matched by the amount of fixed capital.

The advantage normally accrues either to the company or its shareholders when a scrip issue is made, except possibly to increase the marketability of shares by increasing their number and correspondingly reducing their market price. In fact, the earning capacity of a company can hardly be affected by a paper transaction requiring a mere merging of items on the same side of the balance sheet, although the Companies Act uses the expression "fully-paid bonus share" as indicating a capitalization or scrip issue. In a bull market such issues are welcomed and share prices tend to rise, but in a dull market a scrip issue is enough to depress the price of existing shares far more than circumstances warrant, unless, of course, a definite statement is made by the company that the existing rate of dividend, regarded by the market as satisfactory, will be maintained on the enhanced capital, or, preferably, augmented by a dividend bonus. Incidentally, in making a scrip issue to ordinary shareholders of a company in which there are also preference shareholders, notwithstanding the absence of any restriction in the Articles requiring the prior consent of preference shareholders to further issues of ordinary shares, consideration should be given to adjusting the voting rights of preference shareholders in the interests of fair play. However, it has been held that an addition to the voting power of one class of shares, such as by a scrip issue to ordinary shareholders, does not "affect" the rights of another class, such as preference shareholders for the purpose of an Article giving that other class a right to vote on the addition if its rights are affected.

Where existing shares have a low par value, an alternative to the issue of share scrip in the form of additional shares is to increase the par value of each existing share. Incidentally, if shares of no-par value were permissible the scrip issue would become the share split. In certain exceptional cases, ordinary shareholders may benefit from a scrip issue made in the form of debenture stock to give a marketable security to institutional investors to provide cash for shareholders, or in the form of preference shares. For example, consider the case of a company making a scrip issue one 5 per cent cumulative redeemable preference share for each £1 ordinary share, when maintainable earnings are 60 per cent and dividends 15 per cent of ordinary capital. After allowing for the dividends on the new preference shares, the net earnings for the ordinary shares will be 55 per cent, so that a dividend of 15 per cent can still be paid on these shares. The dividends on the preference shares will be covered eleven times and will be at least twice covered

by assets. In this case, the earnings prospects of the ordinary shares are not adversely affected by the scrip issue as they would be if the scrip issue were in ordinary shares, because the ordinary dividend is still covered nearly four times, whereas, if the capitalization were in ordinary shares, the ordinary dividend would be covered only twice. Thus, the scrip issue in this form gives the ordinary shareholder an attractive security which he may dispose of without any significant impairment of his ordinary shareholding. Such a scrip issue amounts to a recapitalization as compared with the ordinary type of scrip issue, with an increased distribution of 5 per cent. on the holdings of each shareholder who retains his scrip shares. The distribution is greater when the preference shares so issued are redeemable by annual instalments, although the requirements of the Act regarding the redemption of preference shares should not be overlooked.

It is, however, a mistake for companies to be over-generous in capitalizing their reserves in a period of price inflation, for subsequent changes in economic conditions may compel subsequent capital reductions. Clearly it is undesirable to entirely replace the flexibility and mobility of reserves by a rigid capital structure without any protection against possible alterations in monetary values and trade. Rather than to declare scrip issues where earning capacity is not reasonably assured in the future, any surplus may be used to create a dividend equalization reserve provided corresponding funds are invested in outside securities. As a general rule, reserves should not be capitalized so that fixed capital exceeds fixed assets and a reasonable level of current assets or beyond the point where reasonable earnings and dividends are likely to be maintained in the future. Preferably the aggregate amount capitalized should have a convenient arithmetical relationship to the relative issued capital.

Profits may be capitalized under authority of the Articles by paying up and issuing share scrip to members of the company instead of distributing the profits as ordinary dividends. Other capital reserves, such as a share premium account or a capital redemption reserve fund, may also be used as the source of a scrip issue. Table A, where applicable, authorizes the capitalization of profits and the scrip issue to be carried out by an ordinary resolution of the company in general meeting, the allotment being made subsequently by the board or a committee of the board. A return of allotments must in any case be filed with the Registrar of Companies and since a scrip issue is an allotment for a consideration other than cash, a further document has to be filed, duly stamped, constituting the title of the allottee to the extra shares.

CHAPTER 27

CAPITAL RECONSTRUCTION

RECONSTRUCTION is used as a general term covering all kinds of company arrangements which arise in business for a variety of reasons. There may be need to modify the rights of shareholders in order to attract extra capital, or to compensate preference shareholders for arrears of dividend, or creditors for outstanding debts by the allotment to them of shares in the company. A reduction of capital may be involved. An extension of the company's objects may be sought otherwise than by altering the objects clause in its Memorandum by means of a special resolution as permitted by the Act. There is a reconstruction when the undertaking of a company is transferred to another company with a view to its continuance. There is also a reconstruction even where all the shareholders or all the assets or all the liabilities of the original company are not taken over. Amalgamation is normally a blending together of two or more undertakings in which the original shareholders become substantially the members of the new company. Amalgamation may also take place by the transfer of one or more undertakings to an existing company. The amalgamation of companies may be designed to reduce working expenses, increase efficiency through unified control, reduce or eliminate competition, or to provide greater facilities for research, development, the procurement of supplies and the raising of additional finance.

Alteration of Class Rights

Where the Memorandum or Articles enables the rights of a particular class of shares to be amended subject to the consent of any specified proportion of the relevant shareholders or with the sanction of a resolution of a separate meeting of that class, a capital re-organization scheme may be adopted which necessitates only an alteration of the class rights, subject to the right of dissentients holding not less than 15 per cent of the relevant shares to apply to the court to have the variation cancelled.

Sale under Power in Memorandum

In certain events, a reconstruction may be effected by selling the company's undertaking, under a power in its Memorandum, for paid-up shares in a new company and thereafter resolving upon a voluntary winding-up, in which the liquidator is authorized under the Articles to distribute the shares so acquired and any other surplus assets, after providing for all debts and liabilities, amongst the members of the company in accordance with their respective rights and interests. Arrangements of this kind are *ultra vires* unless made in accordance

-with the provisions of the Act, under which rights are given to dissentient members.

Reconstruction in a Voluntary Winding-up

The Companies Act permits the liquidator of a company in a members' voluntary liquidation, with the sanction of a special resolution, to wholly or partly sell its business or assets to a new company under any arrangement whereby the members of the old company participate in the profits of or obtain some other benefit from the new company, such as shares for distribution amongst the members of the old company. A liability to pay cash cannot be imposed on the members of the old company without their consent by allotting them shares credited as partly paid up. The Act does not require that all the company's assets and undertaking must be transferred, but it permits the transfer to be made only to another company, so that whereas an arrangement to transfer the property to the promoter of a new company, for profit, is invalid, transfer to a trustee for an intended company is apparently permissible. The ability of a three-fourths majority of the shareholders in the old company to effectively sanction this course is, however, subject to the right of dissentient members to require the liquidator, either to abstain from carrying the resolution into effect, or to purchase their interests at a price fixed either by agreement or by arbitration in the manner prescribed by the Act. The Act extends these provisions to the case of a creditor's voluntary winding-up, except that any powers conferred on the liquidator are exercisable only with the sanction either of the court or of the committee of inspection.

Arrangements made under these provisions may be designed to alter the objects of the company. The Memorandum of the new company will embrace the necessary power to enable the company to carry on the class of business contemplated, so that, upon completion of sale, a share in the new company will be allotted usually for each like share in the old company. Subject to dissentients, the new company then replaces the old one, but with additional powers. The new company may retain the name of the old company, unless the Board of Trade decides otherwise. In other cases, the arrangement may be designed to avoid petitioning for a reduction of capital. Where the objective is to reduce the capital of the company by an amount which has been lost or is no longer represented by available assets, each member of the old company is allotted proportionately less capital in the new company. The provisions may also be used to amend the rights of various classes of shareholders.

Initial circularization of all shareholders is desirable in order to ensure the absence of any serious opposition to the scheme likely to result in its abandonment. Assuming the scheme proceeds, however, any neutral shareholder who neither assents nor dissents to the scheme loses his rights under the scheme, unless any have been reserved to him by the scheme, or unless the scheme is eminently unfair and the minority prevents it by obtaining a compulsory winding-up order.

A member who dissents must have refrained from voting in favour

of the special resolution and is required to express his dissent in writing addressed to the liquidator at the registered office of the company, within seven days after the passing of the resolution, requiring the liquidator either to purchase his interest at a price to be determined either by agreement or by arbitration, or to refrain from carrying the resolution into effect. The statutory rights of dissentient shareholders safeguard minority interests, for otherwise the statutory majority could arrange matters to suit themselves alone and compel the minority to conform, possibly involving them in further liabilities or the relinquishment of all interest in the assets. As the minority has a statutory right to dissent, the right cannot be negated by any contrary provision in the Articles. If the liquidator elects to purchase the dissentients' interest, the purchase money must be raised by the liquidator as determined by the special resolution and paid before the company is dissolved. In order to provide a fund for the purchase of the interests of dissentients, either certain assets may be excluded from the sale of the old company or the new company may borrow the money.

The only protection given to creditors by the Act in these cases is that if an order is made within a year for winding up the company by or subject to the supervision of the court, the special resolution is invalid unless sanctioned by the court. Therefore, creditors who remain unpaid or otherwise unprovided for may petition for a winding-up order within the year. A friendly creditor may enable this contingency to be resolved by petitioning for a supervision order to obtain the sanction of the court to the scheme.

In the kind of reconstruction considered, the shares in the new company are divided amongst the shareholders in the old company according to their rights in a winding up as given by the Articles of the old company, unless these regulations require a division to be made otherwise, for the Act gives no right to the statutory majority to vary the manner in which the consideration is to be allocated among different classes of shareholders. Unanimous agreement by all parties may, however, permit the method of distribution to be varied. Also, except where the Memorandum defines the rights of shareholders, a special resolution may amend the Articles and so vary the method of distribution. Where appropriate arrangements cannot readily be made and in other cases where creditors are involved, a scheme of arrangement may be entered into under other provisions of the Act, whereby the court is able to sanction a distribution otherwise than in accordance with the rights of shareholders, although the court usually provides for the same protection to be given to dissentient shareholders.

The Act provides that any arrangement entered into between a company about to be, or in the course of being, wound up and its creditors is binding on the company if sanctioned by an extraordinary resolution and on the creditors if acceded to by three-fourths of them in number and value, subject to any creditor or contributory appealing to the court against the scheme within three weeks from the completion of the arrangement, whereupon the court may amend, vary or confirm it. This provision is inapplicable except in the simplest cases as it contains no power to bind classes of creditors.

Reconstruction with Compulsory Acquisition of Minority Interests

Reconstruction may sometimes be effected without liquidating the transferor company before the number of dissentient members has been ascertained and without the application of the special provisions of the Act as to dissentient members already considered. This may be achieved by shareholders having voting rights in the transferor company exchanging their shares either for cash or the allotment to them of shares in the transferee company credited as fully paid in some specified ratio to their respective holdings, followed by compulsory acquisition under special powers contained in the Act, of the shareholdings of the rest of the members, liquidation of the old company and the transfer of its assets and business to the new company, with retention of the name and goodwill of the original company.

A provisional agreement may be made between the new company and the directors of the old company for the new company to purchase the shares held by each member who adopts the agreement in consideration, wholly or partly, of the allotment to him of fully-paid shares in the new company. The agreement may be provisional upon its confirmation by a specified proportion of the relative shareholders as the new company may consider requisite. A copy of the provisional agreement would be sent to each shareholder with a circular letter from the directors regarding the expected advantages of the scheme and recommending acceptance of the proposal by completion before a specified date of the form of ratification attached. Schemes of this kind are particularly appropriate where the transferor company is a private company and the assent of its members can be assured in advance.

The Act provides that where a scheme has been sanctioned by the holders of nine-tenths of the shares still to be acquired, the purchasing company may acquire the remaining shares compulsorily on the same terms, subject to a right of appeal to the court by any dissentient shareholder. The general procedure to be adopted in cases of this kind is considered in some detail in Chapter 30 under the section concerned with “ ninety per cent deals ”.

Reconstruction under Supervision of the Court

The reconstruction or amalgamation of companies may be effected under the supervision of the court in cases where the risk of dissenting members is considered too great or where it is desired to alter rights of shareholders otherwise than as permitted by the Memorandum, as by cancelling dividend arrears or a class of preference shares in exchange for shares of another class, or to compromise with the company's creditors by part payment in shares or debentures, or to make arrangements with debenture-holders either to take shares in place of their debentures or to postpone their claims to a new series of debentures. Indeed, many varied arrangements are possible in which the majority can bind the minority. Procedure under these sections of the Act is particularly desirable where the success of a scheme is dependent upon securing the consent of creditors, whether or not the company is in liquidation, for the approval of the court gives statutory sanction to the

scheme and the certainty of its attainment can be assured before the passing of any winding-up resolution.

Where a compromise or arrangement is proposed between a company and its creditors, or any class of creditors, or between the company and its members, or any class of members, the court may, on the application of any of these interested parties, or, in the case of a winding-up, the liquidator, direct that appropriate meetings be convened of the different classes affected. Every person who has an actual or contingent financial claim against the company is a creditor.

A statement must accompany the notice of each meeting explaining the effect of the compromise or arrangement and stating any material interests of the directors of the company in any capacity and the effect of the scheme on them in so far as it differs from its incidence on others concerned. Where the rights of debenture-holders are affected, similar explanations have to be given as respects the trustees of any deed for securing the issue of the debentures as are required in the case of directors. If the notice is given by advertisement, it must state where and how copies of the statement can be obtained.

If a majority in number representing three-fourths in value of those present and voting either personally or by proxy at the relevant meeting agree to the compromise or arrangement, it is binding on the persons concerned and the company when it has been sanctioned by the court. Generally, the court gives its sanction where the requirements of the Act have been fulfilled, provided the scheme is fair and reasonable and no injustice has been done to any class and the court is satisfied that the majority supporting the scheme are acting in good faith. The court may, however, modify the scheme or impose conditions under appropriate circumstances. Accordingly, in order to expedite completion of the scheme, the scheme may authorize the applicant to agree to any amendments or conditions imposed by the court.

Where a scheme involves the reconstruction of a company or the amalgamation of two or more companies and provides for the undertaking or property of the transferor company to be wholly or partly transferred to another company, the Act gives the court power, exercisable at any time, to facilitate the scheme by providing for such matters as the allotment of shares, debentures or other securities, the transfer of property and liabilities, the continuance of any legal proceedings pending by or against the transferor company, the dissolution without a winding-up of the transferor company and consideration for dissentients. If the order so directs, property may be transferred freed from any charge, which is to cease to have effect under the scheme. Such a transfer of property excludes non-transferable contracts, such as those for personal service, nor does it include income tax benefits as to losses or deductions for wear and tear.

Relief from Stamp Duties

Two valuable reliefs from stamp duty are available in connection with schemes of amalgamation or reconstruction, or the transference of property between two companies, under certain conditions.

In connection with schemes of amalgamation or reconstruction,

either a new company must have been incorporated, or an existing company must have increased its nominal capital with a view to the acquisition, wholly or partly, of the undertaking, or at least nine-tenths of the issued share capital, of an existing company. Incidentally, six months' respite is allowed to ensure the acquisition of this proportion at least of the share capital in cases where the required amount is not held at the proper time for making a claim for exemption from duty. A further condition is that at least nine-tenths of the consideration for the acquisition (except any part which consists in the transfer to or discharge by the transferee company of liabilities of the existing company) must consist in the issue of shares in the transferee company to the existing company itself or its members, or, in a case where shares are to be acquired, in the issue of shares in the transferee company to shareholders in the existing company in exchange for their holdings. Subject to the fulfilment of these conditions, the nominal share capital of the transferee company or, as the case may be, the amount by which it has been increased, is, for stamp duty purposes, treated as being reduced by either an amount equal to the share capital of the existing company (or a proportionate part of it in the event only of a partial acquisition of its undertaking), or the amount to be credited as paid up on the shares to be issued as consideration (and on any shares to be issued to creditors of the existing company in consideration of the release of debts from the existing company, or of the assignment of such debts to the transferee company), whichever of these amounts is the less. The exemption will, however, be lost if the shares are not held for at least two years, unless disposed of meanwhile in consequence of amalgamation, reconstruction or liquidation.

A further relief from stamp duty arises in the case of the transfer of property between associated companies if one company is the beneficial owner of nine-tenths of the issued share capital of the other company, or where not less than nine-tenths of the share capital of each is in the beneficial ownership of a third company. In these cases, no stamp duty on conveyance or transfer is chargeable on an instrument which conveys a beneficial interest in property, such as buildings, plant and machinery, from one company to another, unless the true consideration for the transfer is provided directly or indirectly by a third party.

CHAPTER 28

VALUATION OF SHARES

PRIVATE investment in the quoted shares of public companies is invariably made through the medium of the Stock Exchange, where the price paid for shares depends basically on their prospective dividend yields and such other factors as their marketability and general market conditions. Even when purchases are being made for prospects of eventual capital appreciation, the underlying principle of future dividends remains, for appreciation in the normal course of events is only possible as and when satisfactory dividend yields become more assured. The extent of the demand for shares in a particular company is also relevant, especially when demand exceeds supply and raises prices. The ordinary shareholder in an established company usually looks for dividend returns on his investment adequate to the risks involved and, provided the earnings cover is reasonable, he often gives only secondary consideration to asset values. Whereas the maintainable dividend yield is particularly relevant for the minority shareholder, the earnings yield may be more interesting to a buyer seeking a controlling interest which would enable dividend policy to be influenced by him. To a share bidder seeking a capital profit, the assets cover is often of prime importance.

Ordinary Shares

Recourse to share valuations is needed when stock market quotations are not available, as in the case of unquoted shares of public companies and for shares of all private companies. These valuations may be made either to comply with statutory requirements and case law as when made for estate duty purposes, or according to commercial principles in other cases, whether in circumstances which affect the present or future control of the company, or refer merely to the acquisition of a minority interest, or concern a capital reconstruction scheme. In such cases, the same basic principle usually applies of fixing a fair price for the shares as between a willing buyer and a willing seller on a "going concern" basis, although sometimes the "gone value" of a shareholding is relevant. The break-up value of a shareholding, being the amount payable to shareholders in the event of a liquidation, is important to a controlling shareholder, and in a much less degree to other shareholders in whose interest it may well be to contemplate a liquidation to secure a capital profit on realization.

Although the intrinsic value of a business is not dependent upon the relative division of its capital between various classes of share or loan holders, the capital structure and gearing may affect the value of its ordinary shares. If the company is financed by bank loans, debentures and preference capital, a relatively small variation in the company's profit can be reflected disproportionately in the residue available for the equity.

Usually, when a company is being acquired on a going-concern basis, the main difficulty in making a share valuation where stock exchange values are not available is in assessing the value of goodwill of a successful business or the "badwill" or "negative" goodwill of a "run-down" business. The probability of earning future super-profits, being those in excess of the amount required to provide an economic rate of remuneration for all resources employed, is necessary before goodwill can exist. Apart from the need to prepare and adjust a statement of assets and a summary of trading results, it is necessary to determine the amount of current maintainable profits and the equity earnings of comparable companies, as well as to allow for the relevance of the risk-factor in order to determine the capital value of maintainable profits. Whereas the valuation of assets is primarily a matter of fact, the valuation of goodwill is virtually a matter of opinion. It is hardly likely, therefore, that identical valuations will be made of the same case by different valuers, but where separate valuations are made by buyer and seller, the comparative results will be effective in determining the agreed price. The final result is usually one of compromise.

Summary of Financial Position and Results

The valuer acquaints himself with all the relevant facts regarding the general background and position of the company and prepares a statement of assets and a summary of trading results, before taxation, covering a reasonable period. A period of three to seven years may be adequate in surveying past results, from which it may be advisable to adjust profits or losses where special considerations apply and to which it may be desirable to make adjustments relevant to any events which have occurred since the date of the last balance sheet that materially affect the asset position disclosed by trading results. For example, adjustments may be needed in respect of the over- or under-valuation of assets in the balance sheet, assets sold subsequently to the date of the balance sheet, or the distribution of dividends unprovided for in the profit and loss account. Other items which need particular scrutiny and possible adjustment are those concerning management remuneration, intercompany transactions, expenditure on repairs and maintenance, the valuation and depreciation of assets, the valuation of stock and work-in-progress, or variations in the average amount of capital employed in the business since the date of the valuation. Where events have occurred since the date of the last balance sheet which affect only future profits, due consideration should be given to these when assessing the risk element at a later stage in the process of valuations.

The fact that share value is related in some measure to earning power makes it desirable to distinguish when material between earnings from manufacturing and trading assets and those derived from other sources of income. Accordingly, surplus cash or realizable investments, to the extent of any credit balance on the profits and loss account and any interest earned in revenue receipts, may be segregated in the assets statement, because the rate of interest earned on the investment will usually be less than the rate of future maintainable profits. In particular, investments in companies not consolidated may be regarded

as outside investments and segregated accordingly. When future benefit is expected from capital or development expenditure, the amount incurred may be regarded as an investment at cost or at a valuation. In respect of any outstanding loans made to directors, employees, or associated companies, provisions may be necessary against possible failure to repay, particularly where, in the case of private companies, loans have been made to directors without security and free of interest.

Assets may be segregated under three main headings :

- (1) Tangible assets employed in the business, consisting of fixed and current assets, less current and long-term liabilities.
- (2) Investments, whether regarded as fixed or current assets, not strictly employed in the business, which, whilst relevant to the ultimate valuation of the shares, provide revenue independently of trading activities. The availability or otherwise of surplus funds which could be distributed to shareholders without detriment to the requirements of the business is relevant when assessing the risk element in a share valuation.
- (3) Intangible assets, covering goodwill and items such as patents and trademarks. Patents and similar rights which can be realized separately and have an independent value should be included under the previous heading.

Methods of Valuation

Reference will now be made to various methods of valuing goodwill.

(1) A valuation based on a certain number of years' purchase of average net profits obtained in the past requires an arbitrary estimate of the number of years to be applied.

E.g., £20,000 p.a. profits for 3 years
= £60,000 for goodwill.

(2) The valuation may be made according to an estimate of the duration and annual amount of super-profits, where the duration-factor is estimated on the principle that economic laws tend to prevent super-profits becoming permanent.

E.g., £10,000 p.a. super-profits for 5 years
= £50,000 for goodwill.

(3) A sliding scale may be adopted which divides super-profits into equal amounts applicable to reducing periods, on the assumption that the probable duration of super-profits is likely to tail-off.

<i>E.g.</i> , £		£
2,000 p.a. for 5 years	=	10,000
2,000 p.a. for 4 years	=	8,000
2,000 p.a. for 3 years	=	6,000
2,000 p.a. for 2 years	=	4,000
2,000 p.a. for 1 year	=	2,000
<hr/>		<hr/>
10,000		30,000 for goodwill

(4) The present worth of a future annuity equal to super-profits for a certain number of years may be calculated.

E.g., £10,000 p.a. for 3 years, interest 10 per cent
= £24,868 for goodwill.

(5) A global valuation may be made of the business on the basis of capitalized earnings, whereby goodwill is evaluated as the amount of the overall valuation in excess of the valuation placed on tangible assets, whereas negative goodwill or "badwill" equals the amount by which the value placed on tangible assets exceeds the overall valuation. This procedure recognizes that a purchaser is normally interested in the total price required for a business as a whole.

<i>E.g.</i>			£
Trading profit £30,000 and return of 10 per cent required,			
indicates a global valuation of			300,000
<i>Case A</i>	£	<i>Case B</i>	£
Global valuation	300,000	Global valuation	300,000
Tangible assets	270,000	Tangible assets	320,000
	<hr/>		<hr/>
Goodwill	30,000	Badwill	20,000
	<hr/>		<hr/>

Unlike goodwill, tangible assets invariably have an independent value apart from the business. Accordingly, higher rates of interest may be applied on that part which represents a payment for goodwill and an alternative valuation may be made on this basis.

<i>E.g.</i>		£
	Trading profit	30,000
Return of 10 per cent required on tangible assets of £270,000		27,000
	<hr/>	<hr/>
Trading profits appropriate to goodwill		3,000
	<hr/>	<hr/>
Capitalization of profits appropriate to goodwill on a 15 per cent yield basis gives a goodwill valuation of		20,000
	<hr/>	<hr/>

Consideration of these various methods of valuing goodwill indicates that it would be entirely fortuitous if an identical result were obtained in respect of their application to a particular case. The business approach adopted in the application of the global method and the absence in it of certain arbitrary features of the other methods suggests, at first glance, that this method is more likely to result in realistic valuations, whereas, in fact, the resulting valuations of goodwill represent maximum figures which need modification. The precise valuation which is finally made resides between the amount of the maximum valuation produced by the global method and the amount of the minimum valuation represented by the break-up value of the assets. For the break-up value of shares sets a lower limit to their valuation, except usually in cases of minority holdings.

The main difficulties of determining the global valuations are in estimating the amount of future maintainable profits attributable to the ordinary shares and in assessing the expected interest yield to be used in their capitalization to give an overall valuation of all assets, tangible and intangible, employed in the business. Clearly, the greater the difference between the amount of a global valuation and the value of net tangible assets, the more does there seem to be need for the yield to be maintained at a level adequate to enable the investor to amortize,

within a reasonable period, the goodwill element of the purchase price and to compensate himself for the risks of his enterprise.

Current Maintainable Earnings

In assessing the current maintainable earnings of a company from trading at the valuation date, resort may be made to the average results obtained over the period of past earnings which has been surveyed, after off-normal results have been adjusted, or if there is a definite trend in the profits, by applying a weighted average which gives greater relevance to recent years. The determination of the amount of net current earnings requires a deduction from gross earnings of the amount of profits tax payable on the assumption of profits being retained and, if prior rights exist, a deduction is also required for the gross dividends payable and the appropriate amount of the distribution element of profits tax. In other cases, dividends in respect of prior rights may be considered as payable from gross income received from assets segregated which are not strictly employed in trading.

The Risk Element

Although riskless investments are non-existent, the assumption usually made is that the rate of interest obtained from investments in gilt-edged stock represents the minimum yield to an investor who expects a continually maintained income which is free from risk. The extra yield expected from investments in public companies is a reflection of the risk factor particular to the type of business concerned and the dividend risk attaching to the particular investment. Consideration should be given to factors like the following when assessing this risk factor in connection with public or private companies :

- (1) The history, status and prospects of the company and of the industry in which it is engaged.
- (2) The capital structure of the company and, in particular, the incidence of any prior charges and repayment obligations as well as prospective requirements for extra capital.
- (3) The security provided by tangible assets, the security and terms of tenure of premises, the incidence of plant obsolescence, the difficulty of realizing plant and stocks during a recession of trade and the spread of customers.
- (4) The general financial position of the company from a trading point of view, working capital requirements and resources, degree of liquidity, the trend of earnings and the earnings cover provided for dividends and prior charges.

These general risks, which apply alike to public and private companies, are reflected in the stock market prices of shares in public companies. Special risks attach to shares in private companies and usually attract higher yields. These risks arise from restrictions imposed on the transfer of shares by their Articles of Association and may need to be increased where continuity of successful management and personal contacts which are necessary for the profitable continuation of the business cannot be guaranteed. Any special powers of the

directors under the Articles of Association are also important in assessing the yield. In many cases it may be appropriate to increase the percentage yield basis adopted by one-fourth in valuing minority holdings in private companies, for example, by increasing a yield basis of 6 per cent by $1\frac{1}{2}$ per cent to 7 per cent in order to allow for restrictions on share transfers. The earnings record of private companies is often more significant than their dividend record in estimating the risk factor, particularly where an established dividend policy is not apparent. Whilst the dividend record is of prime interest to the prospective holder of a minority interest, the earnings record is more relevant to the prospective holder of a controlling interest, as possession of control may enable dividends to be increased if earnings are adequate.

In the case of partly paid shares, prospective use of monies remaining on call may be to ensure profitable developments or to meet a contingent loss and merit reflection accordingly in the valuation, conservatively in the former case and pessimistically in the latter. Instances of "minus share prices" have not been unknown to the Stock Exchange when calls remained to be made and there existed a contingent loss.

Capitalization of net maintainable earnings in accordance with the earnings yield relevant to the risk factor determines the maximum valuation of the business, comprising assets tangible and intangible employed, to which is added, if appropriate, the share value represented by assets not employed in the business and from which is deducted the value of capital ranking prior to the equity shares. A further adjustment may be required to cover the estimated amount of net dividends or rights accrued on shares if a material time has elapsed since the date of the last balance sheet.

Equity Share Valuations

The maximum value of goodwill may be expressed by the formula

$$G = \frac{P}{X} - C,$$

where

G = maximum value of goodwill,

P = maintainable future profits,

X = return expected as percentage of capital employed,

C = tangible capital employed.

For example, when $P = £70,000$ p.a.

$X = 10$ per cent

$C = £400,000$

we have

$$G = \frac{70,000}{10\%} - 400,000 = £300,000.$$

This procedure is equivalent to capitalizing the super-profits on the basis of the present value of an annuity, for we have

Maintainable future profits	£ 70,000
Minimum return required on investment excluding goodwill element : 10 per cent on £400,000	40,000
Super-profits	<u>£30,000</u>

As the present value of a perpetuity of £1 is given by the formula $\frac{100}{\text{rate of interest}}$, the present value of the super-profits of £30,000 on the same basis is $\frac{100}{10} \times 30,000 = \text{£}300,000$ as before. This formula $\frac{100}{\text{rate of interest}}$ gives, in effect, the maximum number of years' purchase of maintainable future super-profits, so that it fixes the maximum goodwill valuation. In practice, however, super-profits would not be considered as perpetual and would accordingly be restricted to a reasonable number of years' purchase of the annual amount involved, dependent upon the relative bargaining power of the buyer and seller in negotiating the deal. For example, if the seller is anxious to retire, he may well be satisfied with a smaller valuation for goodwill than he would be otherwise. Likewise, the prospective buyer may have other considerations in mind. He may feel for instance that he could add to the goodwill of the business by acquiring it.

An element of "badwill" may need to be taken into account in the case of a "run-down" business. Any capital expenditure required on a re-organization and the method of financing this would also be relevant. The perpetuity formula $\frac{100}{\text{rate of interest}} \times \text{profit shortage}$ (where the "profit shortage" is the difference between the normal required profit and the reduced profit visualized) is relevant in this connection as valuing the amount of "badwill", except in cases where this is restricted by the "break-up" value of the business on a voluntary liquidation. For example, if instead of the previous example, we have

Maintainable future profits	£ 20,000
Min. return required on investment, 10 per cent on £400,000	40,000
Expected profit shortage	<u>20,000</u>

The "badwill" valuation is $\frac{100}{10} \times 20,000 = \text{£}200,000$, giving a total value for the business of $\text{£}400,000 - \text{£}200,000 = \text{£}200,000$. Clearly any improvement made in the amount of maintainable future profits should be to the benefit of the purchaser of the business. If, in this case, the break-up value of the assets on a voluntary liquidation is expected to produce, say, £275,000, then the maximum valuation of "badwill" would be restricted to $\text{£}400,000 - \text{£}275,000 = \text{£}125,000$.

However, it is important to realize that a valuation made on the basis of net tangible assets is not necessarily correct in the case of a company which shows a net loss, for the prospect of liquidation cannot be taken for granted if, in fact, reasonable trading profits are being earned, although the net result is to show a loss, provided there are no creditors who are threatening to enforce a liquidation. This is particularly appropriate in the case of an old-established business, the fortunes of which could be revived by improved management.

Preference Share Valuations

In making valuations of preference shares, relevant factors are the precise nature of the preference, whether non-cumulative, cumulative, redeemable, participating or otherwise, and the rights attaching to the securities under the company's Memorandum, Articles and any other document, in addition to the general and special risk factors attaching to valuations of ordinary shares. The limitation on maximum yields simplifies the valuation.

In estimating the risk factor of preference shares and assuming the background of the company is satisfactory, attention may be given to the capital cover provided by net tangible assets and the extent of earnings cover. The profits record indicates the earnings cover possibly available to ensure the continued payment of fixed preference dividends. A higher yield is indicated by the risk factor where preference dividends are covered less than several-fold by maintainable profits. The value of tangible assets should provide at least a dual cover for the amount of the preference shares issued, because preference shareholders usually demand a greater security of assets than ordinary shareholders.

The dividend rate of the preference shares is the yield to use in the valuation when the cover provided by assets and earnings is satisfactory. If the profits record shows that preference dividends are unlikely to be covered by maintainable future earnings, the preference shares may be valued on the same basis as ordinary shares, because the preference shareholders would be entitled to all the earnings. Yields provided by comparable holdings in public companies provide a basis of reference, when augmented for the special risks involved in unquoted holdings, such as their relative unrealizability in case of need.

Usually, where debentures or preference shares carry a normal adjusted rate of interest and a satisfactory dividend is being paid to ordinary shareholders whilst the capital of the company remains intact, the fixed-interest capital would probably be valued about par. If the fixed-interest payments are subnormal, but other considerations remain unchanged, a proportionate valuation of the fixed securities below par would be appropriate, but the greater the prospects of debenture-holders or preference shareholders in influencing a liquidation, the more nearly would the price of the securities approach par, provided the assets position remains satisfactory. In the event of heavy capital losses, the price would probably have regard to the terms to which the various classes might be assumed to agree in a reconstruction.

Where a company is highly geared, the incidence of profits tax has a depreciating effect on the value of ordinary shares, for, as dividends paid to preference shareholders are not allowable deductions for profits tax purposes, the whole burden of the tax is upon the ordinary shareholders. In highly geared companies the resulting tax burden on equity shareholders is excessive. For example, even where capital is equally divided between preference and ordinary shares, carrying gross dividends of 6 per cent and 10 per cent respectively, the gross amount of profit required to pay the net dividend on the ordinary shares is three times the net amount.

As a first approximation to the valuation of preference shares in a straightforward case, we may use the formula :

$$\frac{\text{Average future rate of dividend expected}}{\text{Adjusted rate of dividend expected for this class of share in a similar business}} \times \text{Par value of preference shares.}$$

For example, when the standard yield provided by quoted securities is 5 per cent and the special risk yield is 3 per cent, the denominator is 8 per cent. Therefore, when the numerator is, say, 10 per cent and the par value £1, their valuation is $\frac{10}{8} \times 20s. = 25s.$ Likewise, when the numerator is 6 per cent, their valuation is 15s.

Participating rights complicate share valuations unless the shares are and are likely to remain fully participating. Unless the Articles so determine, preference shares do not carry rights either to priority for capital or to participate in capital beyond their nominal value. Where preference shares carry the right to participate in available assets in excess of their paid-up value, the prospects of voluntary liquidation need assessment. If preference shareholders are entitled only to the par value of their shares in a liquidation, some reduction in the valuation may be indicated in appropriate circumstances. In other cases, consideration of special rights attaching to preference shares may justify an increased valuation, although the contingency factor in these cases usually indicates a conservative approach.

The valuation of redeemable preference shares is affected by the proximity of their redemption date and their terms of redemption. If it appears that the company may experience difficulty in redeeming the shares at due date, consideration will be given to this contingency accordingly in the valuation. Where redemption is reasonably certain, the shares may be valued at the present worth of the capital and interest which the shares are likely to produce to their owner during their remaining life.

The valuation is more difficult when there is an option to redeem, for a probability factor is introduced which requires an adjustment according to the extent to which the facts indicate the presence of an inducement to exercise the option at an early date. The fact that an option has remained unexercised does not justify an assumption that the position will so remain. The valuation is not affected by an option of redemption where the position of the company is such that there is little likelihood of the option being used.

Space limitations prevent detailed reference to the legal aspect of valuing shares for the purposes of estate duty. This is, perhaps, as well, for as Mr. Justice Danckwerts stated in a case concerning this matter, the result would be "to enter into a dim world peopled by the indeterminate spirits of fictitious and unborn sales."

CHAPTER 29

HOLDING COMPANIES AND SUBSIDIARIES

COMPANIES often have funds available for investment either temporarily or permanently. The danger of investing temporarily in shares of other companies lies in the vulnerability of investments of this kind to short-term market influences. Even the most attractive trade investments are subject to short-term variation in price, and capital loss may well arise unless the investment is continued until prices eventually increase. A greater danger, of course, lies in buying shares in a market which is falling without any apparent prospect of recovery. Temporary investments which enjoy only a limited market should always be avoided. Surplus funds which are only temporarily available may be safeguarded by leaving them on deposit at a nominal rate of interest with the bank or investing them in short-term mortgages with public authorities. In particular, when future cash requirements are likely to arise for taxation payments, temporary investment in tax reserve certificates ensures that cash will be available when required.

Trade Investments

Apart from securing reserves by the investment of funds in sound securities, circumstances often arise in which trade investment of a permanent nature is indicated ; for example:

- (1) Where two companies make possible, by pooling of their technical knowledge and other resources, the emergence of an entirely new enterprise.
- (2) When a company strengthens its trading position by acquiring a larger share of the available market by way of a horizontal or vertical combination.
- (3) When a company promotes a subsidiary business to develop a new market.
- (4) When a company engaged in a remunerative " luxury " trade safeguards its earning power during a period of trade depression by acquiring a present interest in a " utility " trade.
- (5) In order to eliminate unnecessary competition by rationalizing distribution and so reducing distribution costs—desirably, to the benefit of consumers as well.
- (6) In order to " hive off " a section of a business which requires freedom of development for successful growth.
- (7) To ensure raw material supplies or to acquire additional labour resources or manufacturing capacity.
- (8) To limit liability in connection with a semi-speculative venture.
- (9) To promote overseas sales by meeting local conditions and taking advantage of preferential tariffs and freight savings by assembling " end-products " abroad.

- (10) To develop through a subsidiary which has the advantage of " low interest " debentures or preference share capital with low dividend rights.

Trade investments are also useful in helping to preserve a company in times of trade depression. For example, if companies A and B are both operating profitlessly at their respective " break-even " points, an arrangement may be made in order to reduce the aggregate break-even point so that profits arise.

In some cases, shares of other companies are acquired in order to obtain a taxation advantage, although it is doubted whether they all achieve their purpose when the company acquired has taxation losses carried forward for set-off against future profits. When shares change hands there is no corresponding change in the legal entity of the person carrying on the trade, as a company has a separate legal entity from its shareholders. On the other hand, trading losses are available only against future profits of the same trade as that in which the losses were incurred. Therefore, even though a company continues its existence with wide powers in its Memorandum, the relief is unavailable if its existing trade can be shown to have been discontinued.

Sometimes trade investments are acquired by an exchange of shares, whereby the shareholders of the company acquired receive shares in the promoting company in payment for their holdings. Since the passing of the Companies Act, 1948, the scope for expansion by acquiring cross-holdings of shares, whereby shares in one company are allotted in exchange for shares in another company, has been restricted, as an extension of the principle of law which prohibits a company from purchasing its own shares. Accordingly, a subsidiary company as defined in the Act is restricted from purchasing the shares of its holding company, either directly or through nominees. An exception is made where the subsidiary is concerned as personal representative or trustee, unless the holding company or a fellow subsidiary is beneficially interested under the trust and not merely by way of security for the purposes of a transaction entered into by it in the ordinary course of a business which includes the lending of money. Where a subsidiary was a member of its holding company prior to 1st July, 1948, the relationship continues, but the subsidiary is no longer permitted to vote at meetings of the holding company or of any class of members of the holding company, apart from in the exceptional cases mentioned. Similar prohibitions do not apply to debentures and there is nothing to prevent a subsidiary from lending money to its holding company on the security of debentures or otherwise. Nor is there anything to prevent two companies from having up to a 50 per cent interest in the equity of each other, but if one company eventually becomes the subsidiary of the other any transfer or allotment of shares by the holding company to the subsidiary is void.

As already noted, it is unlawful for a company to give, in any way or by any means, any financial assistance for the purpose of enabling anyone to acquire any of its shares or its holding company's shares, except where the company lends money in the ordinary course of its

business of lending money or to enable *bona fide* employees, other than directors, to acquire the beneficial ownership of fully-paid shares, or in connection with a scheme whereby the shares are to be acquired by trustees to be held by or for the benefit of employees, including directors in the salaried employment of the company. The aggregate amount of any outstanding loans made in the last two cases has to be disclosed in the balance sheet.

Extent of Control

The many forms of business association which exist among companies may be conveniently grouped in a general way according to the degree of cohesion involved, as follows :

- (1) A voluntary association among companies for specified purposes, without the direct or indirect incidence of share-holdings. The terms of association may be expressed by written agreement under which the parties to the arrangement may appoint an agent to act on their behalf for the common purpose.
- (2) A number of companies, none of which owns any shares or no more than a small minority of shares in the others, but which are controlled by the same persons as principal shareholder.
- (3) A number of companies including a principal company which does not possess a majority holding, but has a shareholding in the other companies adequate to give effective control by reason, for example, of the spread, lack of interest, or disagreement of other shareholders.
- (4) A group of companies headed by a principal company known as a holding company with subsidiary companies as defined in the Companies Act, 1948.

The legal definition of a subsidiary is, as might be expected, somewhat complicated. For the purposes of Company Law, Company S is a subsidiary of Company H, if any of the three following conditions obtains :

- (1) Company H is a member (*i.e.*, ordinary shareholder holding at least one share) of Company S and controls the composition of its board of directors. The composition of the subsidiary's board of directors is deemed to be controlled when the holding company has unfettered power to appoint or remove the holders of all or a majority of the directorships. H, the holding company, is deemed to have power to appoint a director where he cannot be appointed without its consent, or where his appointment follows necessarily from his directorship of the holding company or where the directorship is held by the holding company or by one of its subsidiaries.
- (2) Company H holds more than half in nominal value (without regard to the amount paid up) of the equity share capital of

Company S. In this content, equity share capital consists of any issued capital of the company to the extent that it carries unlimited right to share in any distribution of profits and/or capital.

Whilst the holding of a bare majority of the equity shares of a company gives the holding company control, it does so only to a limited extent, for a three-fourths majority of votes is required to make any changes in the Memorandum of Association, or in the Articles of Association which determine the legal relations of a company and its members. Thus, a bare majority of shares only gives control within the framework of a company's existing constitution. On the other hand, a 26 per cent shareholding is enough to prevent a company from altering its constitution and, in particular, if the rest of the shares are held by a large number of relatively small shareholders, effective control may be obtained for all practical purposes.

- (3) Company S is in the position of a sub-subsidiary to the holding company, *i.e.*, S is a subsidiary of Company X which is a subsidiary of Company H.

For the purpose of these definitions, shares held or power exercised by the holding company, directly or indirectly, in a fiduciary capacity on behalf of some other person are disregarded. Also excluded are shares and powers when held or exercisable only by way of security and the company's ordinary business includes the lending of money and the shares are held or the power is exercisable by way of security only for the purposes of a transaction entered into in the ordinary course of the money-lending business. Any shares held or power exercisable by any person by virtue of the provision of any debentures of the suspected subsidiary company or of a trust deed for securing any issue of such debentures are also disregarded. Nominee shareholdings or powers come within the definition provided they are not held in a fiduciary capacity.

The following examples are offered by way of illustration :

- (a) Assume the equity share capital of Company X is held as below:

<i>Shareholders of Company X</i>					%
A. Ltd.	.	.	.	.	5
S. Ltd.	.	.	.	.	5
Nominees of S. Ltd.	.	.	.	.	45
Other shareholders	.	.	.	.	45
					<hr/>
					100
					<hr/>

Then, if A. and S. are wholly owned by H. Ltd., X. is its subsidiary, because H. Ltd. directly and indirectly holds more than half the equity share capital of X., *i.e.* (5 + 5 + 45 per cent = 55 per cent). On the other hand, if A. is wholly owned by H. Ltd. and S. is owned as to 90 per cent by H. Ltd., X. is not in this case a sub-

sidiary of H. Ltd., because H. Ltd. owns, directly and indirectly, only 50 per cent of the equity capital of X. *i.e.*, $5 + \frac{90}{100} (5 + 45)$ per cent = 50 per cent.

(b) If two independent companies A. and B. jointly form a third company C. to operate a new enterprise and each holds 50 per cent of the shares in C., C. is not a subsidiary of A. or B.

(c) A company which is a sub-subsidiary of a holding company is not necessarily a subsidiary of the companies which directly hold its shares. For if B. and C. are wholly owned subsidiaries of A. and each holds 50 per cent of the ordinary shares in D., D. is not a subsidiary of B. or C., but it is a subsidiary of A. on the view that as B. and C. are really A.'s nominees, it holds more than half in nominal value of D.'s equity share capital.

(d) Imagine a chain of companies, A., B., C., D., etc., in which each holds 51 per cent of the equity of the next succeeding company, then each company is by definition a subsidiary of the one immediately preceding and any company in the chain is a subsidiary of each company higher in the chain, although the first-named company holds a reducing share of the equity of each succeeding company, *e.g.*, A.'s holdings reduce as follows : 51 per cent of B., 26 per cent of C., 13 per cent of D., 7 per cent of E., etc. If, however, there is any break in the chain, *e.g.*, if B. holds only 49 per cent of the shares in C., no company below the break is a subsidiary of any company above it.

There is clearly no practical limit to the varied arrangements which may arise.

In cases where a company has an interest in another company to an extent insufficient to bring them within the legal relationship of holding and subsidiary company, it is usual to refer to them as "associated companies". The term "fellow subsidiary" is also used to indicate the relationship between two companies which are both subsidiaries of the same company but neither is the other's. For example, Companies A. and B. are both subsidiaries of Company H., but neither holds more than half the equity shares of the other, nor does either control the other. Since a sub-subsidiary comes within the definition of a subsidiary, all sub-subsidiaries come within the scope of the definition of fellow-subsidiaries.

The fact that a group of companies is capable of legal definition does not in any way give it a separate legal entity. Creditors' legal claims are valid only against the individual companies by which the debts were incurred. Although it may be felt that a holding company would not allow one of its subsidiaries to fail for lack of funds, no one should complain if, in the event of the failure of a particular subsidiary, the holding company does not intervene and pay its debts, as the essence of limited liability is simply to limit liability. In fact, the credit-worthiness of a group of companies is strictly applicable only to the holding company and cannot be applied automatically to any particular subsidiary.

CHAPTER 30

THE SHARE BID TECHNIQUE

THE freedom of contract permitted by the law enables any person, syndicate, or company, to bid for control of a public company by offering to purchase the shares of its members. Indeed, the directors of a public company cannot refuse to register any transfer of shares unless the Articles so authorize ; for example, where Table A applies as the regulations of a company, the directors may decline to register the transfer only of a partly paid share to a person of whom they do not approve, or of any shares on which the company has a lien.

Motivation

The acquisition of shares in a company as the result of direct bids to shareholders rather than through normal market channels is an old-established procedure which is always likely to be used in seeking to obtain control of a company for one reason or another. Transactions of this kind often arise as a process of amalgamation when sound business policies cause a company to seek control of another in order to secure essential supplies of raw materials and components, or to satisfy more economically the demands of consumers.

During recent years, the emergence of share bids has received particular impetus as the result of inflation and taxation policies. Many boards of directors have failed to recognize changes in the value of money which have occurred as the result of inflation, so that the intrinsic worth of their company's assets in terms of current monetary values is cloaked by their continued expression in balance sheets in terms of pre-war monetary values. Moreover, the effective incidence of a heavy surcharge to profits tax on distributed profits, imposed by governments as a means of curbing inflation, has resulted in dividend policies falling out of alignment with earnings. As share prices usually reflect maintainable dividends rather than earnings, it is not surprising that share bids arise from an appreciation of the intrinsic worth of the underlying assets of a company or from a confident anticipation that a change in the direction of a company's affairs could well improve dividends. Indeed, so long as dividends and earnings are out of alignment, bidders will continue to find profitable scope for attack on share values. In these cases, share bids merely exemplify the functioning of the price mechanism as an expression of inexorable economic forces contriving to reduce the divergence between actual and potential market prices of shares in public companies. This tendency is unlikely to be counteracted unless directors provide more factual and revealing information to shareholders about the value of their holdings and educate them to appreciate the long-term value of a growth investment secured by retained profits. In cases where the quality of a company's management is declining or where directors,

unlike bidders, fail to realize the potential of a company, it may well be that the public and private interest, together with that of employees, requires a change in ownership and management.

As with other legitimate business practices, however, the bidding process may be misused by spurious bids being made to "rig the market", in order to inflate the market value of a company's shares without any intention of their permanent retention on the part of the purchaser. Spurious bids are inherently bad, especially when supported by the spreading of false rumours regarding hypothetical share offers. However, the discretionary powers of the Stock Exchange authorities, together with the undoubted vigilance of a free and wide-awake financial press, provide valuable protection against abuse of this kind.

Share bidding is, in some cases, actuated by the temptation to convert hidden reserves into cash in order to realize an immediate capital gain by acquiring the shares of a company owning freehold properties, preferably commercial and retail establishments, which can be sold to an institutional investor at a price well in excess of that disclosed at historical cost in the company's balance sheet and leased back to the company at an annual rental, if required for use in the company's business. Indeed, manifestation of this motive has induced the Governor of the Bank of England to request insurance companies and bankers not to lend aid to the acquisition of freehold properties if it appears to help the negotiation of a deal which is of a purely speculative nature. It is only fair comment to add, however, that it was already the practice of at least one of the largest of the insurance groups to deal only with the actual owner of a property if a sale was suggested and to avoid any conversations or negotiations with an agent acting on behalf of an outside client wanting an undertaking that the property would be purchased as an institutional investment if and as soon as the bidder acquired control of its disposal.

If cash is needed by the company in order to reduce bank overdrafts, or to provide funds for business expansion, a preferable arrangement to the sale and leasing back of freehold premises may be to arrange for a straightforward mortgage of the company's properties as being in the best interests of shareholders. It is important to appreciate that the realization of freehold interests in order to enable a capital profit to be distributed may in fact impair future dividends, because cash will be required to pay future leasehold rentals of properties retained in use by the company. Moreover, the publicity which may follow the sale of a property on apparently advantageous terms consequent on a share bid may lead to a considerable increase in yearly outgoings to meet increased rateable values.

Although a successful bid for shareholdings may be actuated by the attraction of a prospective capital gain to the bidder and may temporarily unsettle the market in the shares concerned, or even result in ousting from office those who have long served the company as directors, or in removing the influence of family holdings in a company, nevertheless the public interest may be greatly benefited. Provided the venture is not spuriously speculative, but results in existing assets

being employed to their fullest capacity and advantage to shareholders, employees and customers, it cannot be gainsaid that the public interest is not benefited, because the country cannot afford to have its economic resources remain partly dormant. In fact, economic adjustments through share bids are in principle essential for securing maximum efficiency in the country's economy and are, therefore, in the best interests of all in the long run. It is only directors who are inefficient or unprogressive in serving the best interests of their company who need fear the emergence of the economic whip held by the share bidder, for company law makes ample provision for ensuring fair play and protecting the public interest.

Normal Procedure

As a preliminary to making a formal bid to shareholders, a person may purchase the shares of a company in the open market, either in his own name or in the names of nominees, in order to acquire a sufficient holding as to materially influence the board when he makes a formal approach either personally or through an intermediary. The services of nominees may be used to cloak the identity of the proposed bidder, whilst the services of an intermediary may be used for the same purpose or merely in a professional capacity. Encouragement is given to an increasing market price if initial purchases of shares are made in advance of a formal offer to shareholders. Although the initial purchases may be made on exceedingly advantageous terms, the reducing gap between market price and ultimate bid price makes the formal offer appear less attractive than would otherwise be the case. In some cases, however, an essential condition of a direct bid requires that full publicity be given to the terms of the offer, in order to ensure that all the material terms and conditions are simultaneously made known.

The directors are hardly in a position to refuse overtures of a direct nature, as where a direct bid is made by a disclosed bidder, because it is their duty to facilitate the making of any arrangements which appear to be in the interests of the company. In any case, the bidder is entitled to approach shareholders directly, so that it is preferable for the directors to receive any proposals of this nature if only as a matter of good business practice. After a period of discussion and bargaining the directors may grant facilities to enable the bidder to make a thorough investigation into the business and properties of the company as a preliminary to a firm offer being made. For instance, the bidder may arrange for a valuation of the company's properties and an independent audit of its accounts to be made. In due course, a firm offer may be received by the board for transmission to shareholders, in which event the directors will be faced with making a decision whether or not to advise shareholders to accept the bid. Indeed, the directors have a duty to inform shareholders of any reasonable offer made, but without their recommendation to accept, the bidder would usually have little prospect of success without much further ado.

If the directors decide to support the offer, an agreement may be formulated and signed between the bidder, on the one hand, and the directors on the other, establishing the terms of purchase, either at a

full cash price, or at a partial cash price with the balance payable upon realization of any assets concerned. The proposed offer may be conditional on acceptance by a specified proportion of shareholders. In some cases, a conditional holding of 51 per cent of ordinary shares may be required, although, in many cases, a holding of 90 per cent is required for reasons mentioned below, with a specified date for acceptance. The next step is for the directors to circularize shareholders setting out clearly and fairly the position of the company, particulars of the offer and their recommendation to shareholders. Enclosed with the circular are forms of acceptance and transfer. A proxy form is also enclosed, if necessary, for voting on the question of any proposed payment of compensation to directors. If the requisite number of acceptances are received from shareholders within the prescribed period, the offer becomes unconditional with a binding contract between shareholders and bidder, whereupon the deal is completed by a meeting between the bidder and representatives of shareholders who hand over the acceptances and relative transfer forms in exchange for a banker's draft.

Directors' Compensation

It has already been indicated that a vote may be necessary regarding the proposed payment of compensation to directors for loss of office occasioned by the "take over" deal.

Quite naturally, the directors will not be unmindful of their own position in the event of a bidder taking over the shares of the company. In fact, the vital point in many "take over" negotiations is whether or not the directors threatened with displacement from office consider their personal interests will be safeguarded, although many will deny that such is the case. There is nothing wrong or improper about arrangements being made for the payment of compensation to directors, because whether the compensation is payable by the company or the bidder, the amount must be approved by the shareholders in general meeting.

The legal position is that the Companies Act renders it unlawful for a company to make payments to its directors as compensation for loss of office or in respect of their retirement from office, unless details are disclosed to shareholders and the proposal is approved by the company. This rule likewise applies to similar payments respecting the transfer of any part of the undertaking or property of the company. In certain cases, a statutory duty is imposed upon a director to whom such a payment is to be made in connection with the transfer to any person of all or any of the shares in a company, being a transfer resulting from an offer made to the general body of shareholders; or made by or on behalf of some other body corporate with a view to the company becoming its subsidiary or a subsidiary of its holding company; or made by or on behalf of an individual with a view to his obtaining the right to exercise or control the exercise of not less than one-third of the voting power at any general meeting of the company. The duty imposed on the director in such cases is to take all reasonable steps to secure that particulars with respect to the proposed payment, including

the amount concerned, shall be included in or sent with any notice of the offer made for their shares which is given to any shareholder.

Where payments of compensation are declared illegal, the director is deemed to hold any amount he received in trust for any persons who have sold their shares as a result of the offer made, and the expenses incurred by him in distributing that sum must be borne by him additionally. Where a trust results in favour of the company or of shareholders, the Companies Act also aims at colourable transactions by providing that in any proceedings for the recovery of payments alleged to be held in trust, the presumption is that the payment is within these trust provisions where it is shown that the company or transferee was privy to the arrangement and the payment was made in pursuance of any arrangement entered into as part of the agreement for the transfer concerned, or within one year before or two years after the agreement or the offer leading to it. In these cases, the onus lies upon the director to rebut the assumption that he holds the payment in trust. Moreover, when a retiring director, or a director whose office is abolished, receives more than the true value of his shares, or is given other valuable consideration, the excess paid for the shares, or the money value of the consideration, is deemed for these purposes to be a payment by way of compensation for loss of office. None of these provisions applies, of course, to payments made, in good faith, to a director as damages for breach of contract, or as pension, superannuation allowance or similar payments relative to past service.

Ninety per cent Deals.—The reason why offers are often made conditional upon their acceptance by 90 per cent at least of the shareholders within a specified period is that if the bidding company succeeds in acquiring, either directly or through nominees, at least this percentage in value of the shares whose transfer is actually involved, it is entitled to acquire also the remaining shares concerned upon compliance with the statutory procedure. However, if the bidding company already owns more than 10 per cent in value of the class or classes of shares in question, the fulfilment of additional conditions is necessary, viz. the offer must be identical for all holders of the shares concerned and accepted by the holders of 90 per cent in value of the shares whose transfer is involved, who comprise a three-fourths majority in number as well.

If a bid proposal is approved by the requisite majority within four months after the offer is made, the bidding company may, within a further two months, *i.e.*, within six months from the date of the offer, notify dissentients of its intention to acquire their shares. Unless the court orders otherwise, on an application made by the dissentients within one month from the date on which the notice was given, the bidding company is bound to acquire the shares on the expiration of one month from the date of the notice. This the bidding company must do by sending a copy of the notice to the transferor company, accompanied by an instrument of transfer executed on its behalf and on behalf of the dissentient by a person of its own choosing, unless the shares are payable to bearer. The transferor company is bound to register the bidding company as holder of the shares in question as soon as these formalities have been completed by the bidding company

paying over the purchase price or transferring the relative consideration. The amount thus received by the transferor company must be paid into a separate banking account and there held in trust for the dissentients. These include shareholders who have not assented to the scheme, as well as those who have failed or refused to transfer their shares to the bidding company.

A bidding company which has obtained a nine-tenths holding is bound to give notice to minority shareholders within one month of the date of the transfer of that fact, in order that dissentients holding 10 per cent or less in value of the relative shares may avoid being left as minority members in the newly acquired subsidiary of the bidding company. Any of these minority shareholders may compel the bidding company to purchase his shares, by notifying it accordingly within three months of the date on which he was advised of the position. The purchase has to be made on identical terms as those under which the other shares were transferred, unless other terms are made, or the court, on the application of either party, otherwise directs.

Undisclosed Bidders.—It is not uncommon for the names of nominees to be used in making share bids, thereby avoiding any premature leakage of the bidder's intentions, although this procedure may not be in the best interests of shareholders.

It is well known that every company must keep a register of its members. Moreover, the Companies Act provides that no notice of any trust may be entered on the register or be received by the registrar in respect of companies registered in England. In fact, shares are held in many companies by persons acting as nominees for companies and other persons who desire to hide behind the cloak of anonymity, although, of course, many share investments are held by persons acting as trustees in the ordinary sense of the term. Notwithstanding that a company is not concerned with the beneficial interests in shares, but only with the registered holders, a nominee or trustee is bound to vote as the beneficial owner directs, as also must a shareholder who sells his shares on the terms that he will vote in a certain way until their transfer is registered.

A suggestion was made when the question of nominee shareholdings was considered by the Cohen Committee on Company Law Reform, that it would be desirable for a register of beneficial ownership to be kept for each company, in order to enable shareholders to consult with their fellow members should the need arise in respect of their common interest regarding the affairs of the company. This proposal was not, however, incorporated into the Companies Act, on the grounds that additional administrative work would be thrown on companies and, in any event, it would not be practicable to ensure the absence of avoidance in respect of any such provisions which might be introduced into the law. However, the Board of Trade was empowered to probe behind appearances into realities in connection with shareholdings. The fact that such investigations may be made at public expense ensures that considerations of cost need not deter applications for investigation in what is, essentially, in its wider content, a matter affecting the public interest.

Board of Trade Investigations.—The specific object of an investigation by the Board of Trade may be designed to uncover the existence of an undisclosed shareholder who may appear to be operating against the interests of other members of the company ; for example, to effect a change in the company's trading activities, which, if known to the other shareholders, would materially influence their actions in relation to their holdings or voting powers. The directors themselves may be anxious about acquisitions of the company's shares and feel that lack of knowledge of who are the real shareholders of the company is detrimental to proposed policies. The investigation may even be designed to reveal whether secret profits are being taken by directors by acquiring or selling shares in the company on private information obtained in their capacity as directors and, by influencing their colleagues on the board in their decisions, to induce the market price of the shares accordingly. For example, enquiry may reveal the sale of shares in the name of a nominee, but actually belonging to the director concerned, although every company is under a statutory obligation to keep a register showing as respects each director of the company (not being its holding company) the number, description and amount of any shares in or debentures of the company, or its holding company, subsidiary or fellow-subsubsidiary, which are held by him, even where the shares or debentures are held in trust for the director instead of in his own name or if he has any right to become the holder, whether on payment or not. The services of the Board of Trade may be secured at the instance of either party to a " take over " bid under appropriate circumstances and may be used at the instance of the directors to attack an undisclosed bidder or at the instance of a disclosed bidder to enquire into the acts of directors.

The initiative may be taken either by members of the company, or by the Board of Trade itself, without any application being made by shareholders, where it appears that good reasons exist for the appointment of one or more competent inspectors to investigate and report on the membership of the company, or otherwise with respect to the company, in order to determine the true persons who are or have been financially interested in the success or failure, real or apparent, of the company, or able to control or materially to influence the policy of the company. Accordingly the inspector is empowered to examine nominee shareholders and obtain from them the names of the true beneficiaries of the shares. Where the initiative is taken by the shareholders, application may be made to the Board of Trade to set in motion an investigation at the instance of either at least 200 members of the company, or by any number of members who together hold at least 10 per cent of all the issued share capital of the company. If the application relates to the ownership of particular shares or debentures of the company, the Board of Trade is bound to appoint an inspector unless it is satisfied that the application is vexatious but it is not obliged to do so at this stage where the application relates to other affairs of the company. In the former case, the inspector's terms of reference must include every matter which the applicant seeks to have investigated, except in so far as the Board considers its inclusion

would be unreasonable. The investigation may extend to the consideration of any circumstances suggesting the existence of any relative understanding or arrangement which, although not legally binding, is or was observed or likely to be observed in practice. Power is also vested in the Board of Trade to themselves investigate the ownership of any shares or debentures, where they consider that good reasons exist for this procedure and the appointment of an inspector is not considered to be necessary. As to investigations into other affairs of the company, the Board of Trade is bound to arrange accordingly only if either the company by special resolution, or the court by order declares that the affairs of the company ought to be so investigated. The Board may also appoint inspectors, at its discretion, in circumstances suggesting that the company has been formed or conducted by any persons who have been guilty of fraud, misfeasance, or other misconduct, towards it or its members, or for any fraudulent or unlawful purpose. The discretionary power of the Board of Trade applies also in circumstances suggesting that shareholders have not been given all the information with respect to the company's affairs which they might reasonably expect or where there are circumstances suggesting that its business is being conducted in a manner oppressive of any part of its members.

The inspector may himself extend the investigation to the affairs of any related company (holding company, a subsidiary, or a subsidiary of its holding company, or a holding company of its subsidiary) where this relationship exists or has existed at any relevant time. Wide powers are also given to the inspector to examine officers and agents, past and present, of the companies and in investigating ownership all persons or their agents who are, or have been, or whom the inspector has reasonable cause to believe are, or have been, financially interested in the success or failure of any of the companies or able to control or materially influence their policy. Officers and agents, past and present, of the companies may be examined on oath and the inspector may obtain permission of the court to have other persons whom he wishes to examine in the interests of the investigation similarly examined. However, solicitors are not required to divulge any privileged communication except the name and address of their clients, whereas bankers are bound to answer questions about the financial affairs of the relevant companies but not about those of other clients.

Where in investigating ownership it appears to the Board of Trade that difficulty exists in ascertaining the relevant facts about any shares or debentures, owing wholly or mainly to the unwillingness of any of the persons concerned to assist the investigation as required by the Companies Act, they may even impose restrictions on the shares or debentures as to their transfer, voting rights, issue and, except on a liquidation, as to any payment on them, either of a revenue or a capital nature.

When the report of the inspector is submitted on the ownership of a company, the Board of Trade may withhold the whole or any part of its contents from the company or any other person, thus covering cases in which the report may call for criminal investigation or for this reason require temporary secrecy until proceedings are commenced.

Apparently the function of the Board of Trade in these matters is to reveal the facts rather than to take any specific action which, upon the findings being disclosed, may result from steps taken by the Director of Public Prosecutions or any other person civilly or criminally in accordance with the law.

Disputed Bids.—A resolute bidder who has a minority holding may make his presence felt to an extent commensurate with the voting power under his control. He may, as already noticed, appeal to the Board of Trade to appoint an inspector at public expense to investigate the company's affairs if he has grounds for suggesting that essential information has been withheld from shareholders or that its business is being conducted in a manner oppressive of their interests in the company.

If an annual general meeting is in prospect, he can by requisition force the company to circularize shareholders at his expense with particulars of any resolution he wishes to introduce. In respect of any general meeting, he may enforce the circularization to members entitled to notice of the meeting of a statement of not more than 1,000 words regarding the contents of the proposed resolution or the proposed business. In order to enforce this procedure on the company, he needs to control members representing at least 5 per cent of the total voting rights or to combine with other shareholders so that all together number at least 100 and hold shares on which an aggregate of £10,000 at least has been paid up. The requisitionists are required to give security to meet the company's expenses and deposit the signed requisition at the registered offices of the company, at least six weeks before the meeting where the requisition requires notice of a resolution and at least one week before the meeting otherwise, except where the period is reduced by the meeting being called within six weeks of the deposit of the resolution. However, action in this respect may be countered by the company or any person aggrieved applying to the court to prevent the circulation of the statement.

If the bidder controls at least one-tenth of the paid-up capital carrying voting rights at general meetings, he may force the directors to convene an extraordinary general meeting on a requisition of at least two members stating the objects of the meeting. If the directors do not comply within three weeks, any of the requisitionists representing more than half the total voting rights of them all may convene a meeting to be held within three months from the date of deposit of the requisition and may recover from the company any reasonable expenses thus incurred, which the company may in turn deduct from the remuneration of directors who were in default. Where for any reason it is impracticable to call a meeting in any manner in which meetings of the company may be called or to conduct any meeting of the company in manner prescribed by the Articles, or the Act, the court has power to order a meeting of the company to be called, held and conducted on its own motion, or on the application of any director or member of the company having voting rights.

The bidder, like any other shareholder, may demand a poll at any general or extraordinary general meeting, despite anything to the

contrary in the Articles of Association apart from regulations concerning the election of the chairman or the adjournment of the meeting provided he can control the votes of at least four other members having the right to vote at the meeting or the votes of at least one-tenth of the total voting rights of all those entitled to vote at the meeting, or the votes conferred by shares on which an aggregate sum has been paid equal to at least one-tenth of the total sum paid up on all shares conferring the right. Proxies count as members for the purpose of demanding a poll. The directors may, however, oppose the bidder provided they act in good faith in the interests of the company, by encouraging shareholders to vote for or against a particular resolution and may even send out stamped proxy forms at the expense of the company, provided the forms are sent out to all members of the company.

The bidder may make his presence felt in other ways. A minority interest may enable him to petition for winding up the company on the grounds that it is just and equitable for this action to be taken, although it has been held that mismanagement by directors does not *prima facie* give grounds for a shareholder petitioning. He should call a meeting. The petitioning member must normally have been registered as a shareholder in the company for at least six months during the eighteen months previously. Alternatively, proceedings may be set in motion to apply for an injunction against the company to restrain it from certain actions contemplated against the bidder's interests as a shareholder. The bidder having acquired certain shareholdings may also complain to the court that the affairs of the company are being conducted in a manner oppressive to some of the members, including himself, and if the court agrees but considers that to wind up the company would unfairly prejudice that part of the members, although such a course would otherwise be just and equitable, the court may, in order to conclude the matter, make an order for regulating the conduct of the company's affairs in the future or for the purchase of the shares of any members of the company by other members of the company or otherwise. If the Memorandum or Articles of the company are affected by such an order no further alterations inconsistent with the effects of the order are permissible without leave of the court. However, the court would be unlikely to make an order under this section in the case of a prosperous concern, or if the facts disclosed show no oppression of the petitioners as shareholders.

The problem of taking effective action in frustrating the intentions of share bidders is not only latent with legal pitfalls, but is made more difficult by the fact that shareholders are usually inarticulate and widely dispersed. Even though the directors may be able to react to an unwelcome bid by increasing dividends, the adoption of this course of action may indicate that directors have not been sufficiently mindful of the interests of shareholders in the past.

The position where the directors of a company are faced by a bidder who operates through nominees has already been considered in connection with Board of Trade investigations. Another special problem arises when the apparent objective of a bid is to acquire control in order

to realize a capital profit by the disposal of freehold properties belonging to the company or to convert the company's properties for another use. One method of frustrating bidders where freehold properties are concerned is to create debentures on the properties and issue the relative scrip to existing shareholders, instead of leaving the property values as a concealed reserve in the balance sheet. This objective may be achieved by revaluing the assets of the company if expressed in terms of pre-war monetary values and using the capital reserve thus created as the basis for a scrip issue in debenture form, appropriately related to shareholdings. An arrangement of this kind frustrates bidders, because, instead of their merely having to acquire a majority of the shareholdings, it becomes necessary for them to acquire in addition the whole debenture issue based on current values of the assets concerned, although the cost of acquiring a majority share interest may be materially reduced. Even if the annual charge thus incurred for debenture interest means that dividends must be partly reduced, the aggregate income available to shareholders may actually be increased because debentures interest, unlike dividends, does not attract profits tax. Thus the income of members may be improved, whilst bidders are frustrated by a dated debenture which safeguards the underlying security from being released. On the other hand, it should be appreciated that the pledging in this way of freehold interests is undesirable if the underlying security is likely to be required later in order to support a debenture issue for cash or to justify a bank overdraft.

It may be felt that another method of taking action to frustrate a share bidder would be to sell the company's assets at their full market price to a new company in consideration of non-voting shares and to lease back the properties from the other company at an annual rental sufficient to cover the proposed dividend payments on non-voting shares. This arrangement, apart from any inherent legal difficulties entailed, has the disadvantage that, if effective against the bidder, it results in removing the property from the control of the company. Moreover, the power of directors to act in this way may be restricted by the constitution of the company and the fiduciary position of the directors themselves.

The powers of a company are, of course, limited by its objects as set out in the Memorandum of Association, which is its charter of incorporation. The directors cannot legally do any act that is not expressly or impliedly authorized by its constitution or by the law, and even the consent of every member of the company cannot validate any acts done by the company to the contrary. In fact, one company cannot promote another unless authorized by its constitution to do so. However, a company is able by special resolution to alter the objects clause of its Memorandum in order, *inter alia*, to enable it to carry on its business by new or improved means, or to restrict or abandon any of the objects specified in its Memorandum, or to sell or dispose of the whole or any part of the undertaking, or to amalgamate with any other company or body of persons. Thus a company may take power, if authorized by a three-fourths majority of its members, to promote

another company and to sell its freehold properties to that company. Although these alterations can be made without any confirmation by the court, a bidder who controls not less than 15 per cent in nominal value of the whole or any class of the company's issued share capital (or of the company's debentures entitling the holders to object to such alterations) may apply to the court within twenty-one days for the alteration to be cancelled, in which event it is ineffective unless confirmed by the court. The company which already has these powers is, of course, in a better position to take avoidance action against bidders should the need arise.

As already stated, the fiduciary position of directors may restrict their activities in seeking to frustrate a bidder for the company's shares, for directors are not only agents of the company, but are in the position of trustees. They are trustees of the company's money and properties and agents with regard to all ordinary business transactions undertaken by them on behalf of the company. In their capacity as agents, they have the power and duty of carrying on the business of the company, subject to the law and the Memorandum and Articles of Association of the company. The company's Articles of Association usually give wide powers to the directors to carry on the business of the company, even to the extent of selling all or any of its assets in accordance with express powers in the Memorandum of Association. In practice, directors can usually command a majority vote of the company's shareholders, so that, provided their actions are within the legal powers of the company, their position may be virtually incontestable. Nevertheless, no responsible board would consider making a major change in the business or assets of the company without securing the approval of shareholders, unless forced to take urgent action to protect the true interests of the company. In the final analysis it is the shareholders who have the last word as expressed by their ability to change the occupancy of the board, and directors incur a serious risk by virtue of their fiduciary position if they dispose of the company's properties without the prior assurance of the majority support of shareholders and the authority of the company's constitution.

The principle that the majority of members is entitled to control the company is embodied in the rule of *Foss v. Harbottle*. This was a case in which two members of an incorporated company took legal proceedings against the directors and others to enforce them to make good losses sustained by the company as a result of the fraudulent actions of the directors concerned. The court declined to interfere on the grounds that as the acts complained of could be confirmed by the majority of shareholders it was for them to complain or not as they might think best. As stated in another case: "If the thing complained of is a thing which, in substance, the majority of the company are entitled to do, or if something has been done irregularly that the majority of the company are entitled to do regularly, or if something has been done illegally which a majority of the company are entitled to do legally, there can be no use in having litigation about it. The ultimate end, no doubt, is, that a meeting has to be called and then ultimately the majority gets its wishes."

This rule of the supremacy of the majority is, however, subject to various limitations. In particular, a majority of shareholders cannot sanction any act which is beyond the legal powers of the company, and a majority is not entitled to commit a fraud on the minority. In cases where the constitution of the company requires a special or extraordinary resolution to authorize a particular act, a bare majority is inadequate, for a three-fourths majority is required in such cases under the Companies Act. However, a majority of shareholders cannot sanction the exercise of powers of the company which, under the Articles, are delegated to the directors exclusively, for the regulations contained in the Articles of Association until altered by a special resolution of shareholders are the authority for the management of the company's affairs. Nevertheless, in the exercise of their powers, whether special or general, the directors must always have regard to their fiduciary position. Whatever powers are delegated by the shareholders to the board to manage the affairs of the company, it can hardly be right for the directors to seek to exercise their powers in a way which negates the delegation or renders irrevocable the existing policy of the board, for example, by alienating the control of assets permanently from the shareholders, although giving expression in so doing to what in all good faith they consider is for the benefit of the company and its shareholders. It has indeed been held where the directors were empowered by the Articles without any express restriction to issue "unissued shares," that the power could operate only to enable them to raise additional capital according to the requirements of the company and not in order to inflict their views on the existing majority by converting them into a minority through the issue of additional shares and so enable a proposal of which the directors disapproved to be defeated against the wishes of the true majority. A shareholder who wishes to protect the company's interest, and therefore, his own, against the acts of directors may do so by himself suing the company if the act complained of is of a fraudulent character, or is oppressive to shareholders, or is beyond the powers of the company, even though the wrong-doers control the majority of votes.

CHAPTER 31

ASPECTS OF GROUP TAXATION

INTER-COMPANY transactions made to allocate common expenses within a group, or charges for central services, or rentals of premises and plant provided for the use of member companies are usually accepted for taxation purposes, if made before the end of the relative accounting period on a reasonable basis which takes due regard of any minority interests concerned. Moreover, there are no provisions against artificial transactions for income tax purposes such as there are in respect of profits tax, in relation to companies resident in and carrying on business in the United Kingdom.

Capital Allowances

With reference to the events mentioned in Chapter 14 which result in the withholding or withdrawing of investment allowances, a special provision applies in respect of plant or machinery which is sold to an associated company. Unless an investment allowance which is made or falls to be made in respect of the plant or machinery is withheld or withdrawn, the buying company cannot obtain an initial allowance.

Other provisions also operate to prevent the duplicating of capital allowances. Where an industrial building or structure is sold by a Company to an associated Company other than for its open market price, the general rule is that the market price is required to be substituted as the basis of calculating balancing allowances and charges. The parties may however elect in writing to the Surveyor for the price adopted to be taken as the lower of the market value or the residue of the expenditure on the construction of the building. In this event the buyer's total allowances will be limited to this residue (or market price if lower) but in the event of a subsequent sale any balancing charge or allowance will be calculated as though the original vendor had owned the property throughout. Under the provisions of the 1954 Finance Act, which apply as from 6th April, 1954 the election may not be made if any of the parties to the transaction is not resident in the United Kingdom at the time of the sale.

The general rule described in the previous paragraph applies to sales of machinery or plant with two modifications, apart from a more complicated provision which rarely arises in practice. Firstly, no initial allowance may be claimed by the controlled purchaser, and secondly, the price which has to be substituted is the open market price or the original cost to the seller, whichever is the lower. In the case of an election being made as mentioned above, the figure to be taken as the sale price is the expenditure unallowed immediately before the sale (or open market price if lower).

Subvention Payments

A special relief is now available in respect of income tax and profits tax to what may be termed a "fiscal group". This expression relates

to a group wherein the holding company holds directly, or indirectly, at least three-fourths of the share capital of each subsidiary. An agreement may be made between two such connected companies, resident in and trading in the United Kingdom, for the paying company to bear, or share, the losses, or a particular loss, of the payee company by making a subvention payment in or before the year of assessment following the relevant accounting period, in order to set off the loss of one company against the profit of the other. In this event, the payment is treated for income tax and profits tax purposes as a trading expense of the payer and as a trading receipt of the recipient company for the relevant accounting period. Thus, if Company A., a fiscal subsidiary of Company H., makes a profit for tax purposes in 1953 of £50,000, whilst Company B., a fellow subsidiary of Company A. for fiscal purposes, sustains a loss for tax purposes of £20,000, Company A. can make a subvention payment of £20,000 to Company B. during 1954–55 which would serve to reduce the assessment on Company A. for 1954–55.

The amounts recognized as subvention payments are limited to the lower of the deficit of the receiving company and the surplus of the paying company for the corresponding accounting period, the object being neither to create a profit for the recipient company nor a loss for the paying company from a fiscal point of view. Payments to or from more than one company are regarded as abating in manner agreed by the companies concerned, or, in the absence of their agreement, as determined by the Commissioners. The surplus or deficit is ascertained by adding other income for the year of assessment to the trading profits of the accounting period ending within it and comparing the resulting figure with the total of (1) any losses of the accounting period, (2) capital allowances for the year of assessment other than any already given as deductions in computing the profits or losses and any brought forward from a previous year, and (3) annual charges for the year of assessment but excluding capital payments in respect of patent rights and amounts deductible in computing profits and losses. All the above items are proportionately reduced for accounting periods of less than a year. Where the subvention computation affects a loss in respect of which the company has already received a repayment of tax, the amount, if not otherwise made good, is assessable on the company under Case VI of Schedule D to the extent of so much as would not have been made in the absence of the subvention arrangements.

Election to Group Treatment for Profits Tax

Another arrangement of importance to companies within the same fiscal group permits a principal company by written notice to elect to group treatment for profits tax purposes in respect of all, or any one or more, of its fiscal subsidiaries, *i.e.*, those in which the principal company has, directly or indirectly, a 75 per cent interest in the total amount of ordinary share capital. Election is possible only if both principal and subsidiary are resident in the United Kingdom. A subsidiary company which is not the subject of an election will remain chargeable for profits tax as a separate trading unit. The election is effective for a chargeable

accounting period if given within six months of the end of that period, unless the Commissioners allow a longer period.

As an election once given applies to all later accounting periods unless the conditions as to holdings cease (subject to the principal company's power of revocation in respect of a notice given before the end of July, 1947), a measure of speculation enters into the decision whether or not to elect for group treatment. Important factors in making the decisions are the possible effect on the normal abatement relief and the exemption limit. If some companies are incurring losses whilst others are profitable, an immediate relief is available instead of the loss having to be carried forward until absorbed by subsequent profits of the same company, although the recent enactment in respect of subvention payments also provides relief. However, notice of election for group treatment would forfeit the exemption limit in the case of a company with a profit of £2,000, or less, and reduce or eliminate the abatement relief of a company with profits which exceed £2,000, but do not exceed £12,000. On the other hand, losses and accumulated capital allowances of the subsidiary company for chargeable accounting periods prior to the election cannot be set off against the profits of the principal company and remain in abeyance until such time as the subsidiary relationship ceases.

If election to group treatment is made, the franked investment income and gross relevant distributions of subsidiaries are treated as those of the principal company, with the exclusion of inter-company dividends from the gross relevant distributions to proprietors of the paying company and from the franked investment income of the recipient company. Where, prior to the election becoming operative, a subsidiary has received non-distribution relief which has not served later to increase a distribution charge on the subsidiary or on any company which has been its principal, the amount of the relief must be taken into account in making a subsequent distribution charge on the principal company, when the combined relevant distributions for any chargeable accounting period exceed the combined profits chargeable to profits tax.

Companies within the same fiscal group which do not elect for group treatment for profits tax are treated as separate companies as regards abatements, franked investment income and net relevant distributions, except as regards the payment of any interest, annuity, or other annual amount, or royalty, or rent, by a resident company to any company within the same fiscal group. The treatment of these payments for profits tax is the same whether or not an election for group treatment has been made. The payment is not allowed as a deduction in computing the profits of the paying company unless made to a non-resident company and authorized by a double taxation treaty. As no deduction from the profits of the paying company is allowed, the payment becomes part of the gross relevant distributions to proprietors if made to a member company in which the directors have a controlling interest. The corresponding receipt is excluded from the assessable profits of the recipient company when this is non-resident. As a resident company must, therefore, include the receipt in its chargeable profits, and the

payment is not allowed as a deduction from the profits of the paying company, there is in effect a double charge and the recipient company may claim that its profits tax assessment be reduced by $2\frac{1}{2}$ per cent of the amount of the payment, or of the chargeable profits if less.

However, the payment may be allowed as a deduction from the profits of the paying company and included as an addition to the profits of the resident recipient company, if a joint election is made accordingly by the companies and their holding company, and both are subsidiaries. The joint election has to be made within six months of the end of the accounting period concerned and, when made, continues to apply, except as regards a company which ceases to be a subsidiary.

Overseas Subsidiaries and Interests

The residence of a company for taxation purposes is determined by the situation of its central control and directing power, which may, or may not, be in the country in which it is registered. A company is not resident in the United Kingdom even it has a registered office here, if the only functions carried on here are in fulfilment of the requirement of the Companies Acts. Conversely, a company which is registered abroad, with its general meetings held at its head office overseas, may, nevertheless, be regarded as resident in the United Kingdom, if effective control of the company is exercised in this country by holding meetings of directors here. Even when the control of a company is exercised abroad and only formal administrative business is dealt with here, the company may, nevertheless, be regarded as being resident in the United Kingdom as well as abroad, if the business transacted here is important relatively to the volume of business transacted.

The Commissioners of Inland Revenue hold special powers for dealing with transactions which may result in the avoidance of income tax and profits tax and which comprise, for example, sales of goods to overseas subsidiaries at too low a price and purchases from overseas subsidiaries at inflated prices. They may make a "direction" in respect of such sales which is applicable to inter-company transactions between companies under common control, or when one company controls the other either directly or indirectly, and such transactions include not only the purchase and sale of goods, but lettings and hirings of property, grants and transfers of rights, interests or licences, and the granting of business facilities of all kinds. Where a "direction" is made, the market price is substituted for the price adopted in the transactions. Thus the diversion of profits from this country in aid of a non-resident subsidiary is prevented. Indeed, there is no way of setting-off the losses of non-resident subsidiaries against the profits of resident companies of the group in order to reduce taxation charges. In the event of an overseas subsidiary being deemed to be resident in the United Kingdom because its control and management are in this country, the subsidiary will be separately assessed. Unless it trades in this country as well as abroad and is accordingly able to be a party to a subvention agreement with another resident company in the fiscal group trading in this country, any trading losses incurred by the

subsidiary can only be carried forward to be set-off against its future profits.

The law is particularly stringent in respect of the transfer overseas of the central management and control, shares, debentures, trade, or business of a company resident in the United Kingdom. It is unlawful, except with the consent of the Treasury, for a resident company to cease to be resident. The Treasury may give consent either specially or generally for certain transactions to be carried out. A general consent has, for instance, been given in cases where a resident company was incorporated after 1st August, 1951, to carry on an entirely new trade and more than half of the issued share capital at the time of the transaction was beneficially held by persons ordinarily non-resident. It is also unlawful for the whole or part of the trade or business of a resident company to be transferred to a non-resident. The general consent already mentioned applies in this case as well and extends to transfers for full consideration which does not exceed £50,000 paid in cash, provided that neither the buyer nor seller is interested in the business of the other, that the transaction is not associated with any other operation whereby the business may revert to the seller, or anyone interested in his business, and that the buying company is not controlled by anyone resident in the United Kingdom. It is also unlawful without Treasury consent for a resident company to allow a non-resident company over which it has control to create or issue shares or debentures. Except in the case of redeemable preference shares, a general consent has been given where the issue is for full consideration paid to the issuing company and the shares are not issued to persons who control the resident company or to their trustees or to trustees for a non-resident company controlled by the resident company ; moreover, the transactions must not deprive the resident company of control over the non-resident company. A further general consent has been given to the issue of shares by a controlled non-resident company in the Commonwealth incorporated after the end of 1951 to establish and manage an industrial activity there. Lastly, it is unlawful without Treasury consent for a resident company to transfer, or cause or permit the transfer, of any shares or debentures which it holds in a controlled non-resident company except for the purpose of enabling a person to be qualified to act as a director. In this case, a general consent has been given to transfers directly to another resident company, so long as the vendor company retains control over the non-resident company.

Where a company resident in the United Kingdom engages in business overseas through a foreign company which acts as its agent, the company here is assessable on the entire profits earned by the overseas company, provided the latter is under the effective control of the resident company. If, however, the company here does not take any part in the management of the business of the overseas company, although the overseas company may be its wholly-owned subsidiary, it is not liable for tax on the profits of the overseas company, except under Case V of Schedule D in respect of dividends from its shareholding. There is, accordingly, no power to tax in this country the undistributed dividends of non-resident subsidiaries. The basis of

assessment is normally on the total amount of the income, such as dividends, interest, rent and service charges arising to the company here, whether or not the income will be received in the United Kingdom, subject, however, to a claim for relief in respect of unremittable income. The claim for relief enables a company which has income blocked overseas to avoid having to pay, during the year in which the income arises, tax on that overseas income in the United Kingdom. The relief is available when the taxpayer is prevented from transferring overseas income to this country by reason of the law of the overseas country, or executive action by its government, or the impossibility of acquiring foreign currency in that country, so long as he has not converted the income into sterling outside that country, or into some other currency which he can transfer to this country. If the company so elects it may be assessed without including the overseas income in the assessment, but notice of election must be given to the inspector in writing before the normal assessment on the overseas income has become final and conclusive. The overseas income will be chargeable for tax when the Commissioners consider it is remittable, according to its value, by reference to its recognized market value in the United Kingdom, or, in the absence of any market value, according to the official rate of exchange in the country of origin. Where a notice has been given for group treatment so that the profits of a subsidiary are to be treated for profits tax purposes as the profits of the principal company, the subsidiary is nevertheless deemed to be the person chargeable for the purpose of this relief.

Double Taxation Relief

Relief is also available in respect of foreign taxes on income from overseas sources. The Crown has negotiated double taxation agreements with other taxing authorities to include the allowance of a tax credit to a resident in the United Kingdom, amounting to the full amount of the overseas tax charged up to a maximum equal to the amount of United Kingdom tax chargeable on the income concerned. The bilateral relief provided does not, however, extend in general to taxes imposed by states, provinces and municipal bodies within the territory overseas. Unilateral relief is also available in all cases where bilateral arrangements have not been made, except that Dominion income tax relief continues to apply to the Republic of Ireland, whilst old agreements covering shipping, air transport and agency transactions are being gradually superseded by bilateral arrangements. The taxpayer is not bound to take advantage of these reliefs, but it will generally be in his interest to do so even though he is entitled to deduct any overseas tax from the amount of his overseas income.

The Fiscal Commission of the Social and Economic Council of the United Nations has designed a special pattern of agreement on the basis of which the United Kingdom has negotiated all its bilateral agreements covering double taxation, although the precise arrangements made in each particular case have been varied to suit the particular circumstances. Accordingly, reference is in each case necessary to ascertain the precise arrangements made. The basic approach adopted in these

arrangements is that certain classes of income, such as fixed property, are most suitable for taxation in the country of origin ; whereas, other sources of income, such as royalties and pensions, are most appropriately taxable in the country of residence of the recipient of that income. It is also accepted that the country wherein the recipient of the income resides retains the right to assess his whole income from whatever source whilst giving relief for the tax agreed as being most suitably chargeable in the country of origin. Where bilateral arrangements operate, the tax relief available in this country usually extends to the full amount of the double-tax burden, making the net charge payable by the taxpayer equal to the amount of the overseas tax or the United Kingdom tax, whichever is the greater. Moreover, a proportionate relief from tax is available when a dividend is received by a company in the United Kingdom from a non-resident company in respect of profits which have already suffered tax in this country, for example, as dividends of a United Kingdom company, or on the profits of a branch here. Relief is given from tax on the proportion of the dividend from overseas that the income of the company which has borne United Kingdom income tax bears to the company's total income. Relief in this connection is available, however, only in respect of the net foreign tax remaining after the foreign tax reliefs have been obtained. Incidentally, a dividend payable from capital profits by the overseas company is taxable in this country, unless the share or loan capital of the overseas company is reduced in order to avoid this charge.

Relief under the bilateral arrangements is given as a deduction in terms of tax rather than as a deduction in determining the United Kingdom assessment to tax. The credit is allowed primarily against any excess profits levy and, if that is insufficient, then, in turn, against profits tax and income tax. In exceptional cases, as in respect of the Union of South Africa, the tax credit is given wholly against United Kingdom income tax where the arrangements are inapplicable to profits tax in the United Kingdom. The permissible credit limit against the first two taxes is restricted to the relative tax attributable to the income in question. The credit against United Kingdom income tax is restricted to an amount ascertained by computing the income on income tax principles and charging it to tax at the rate appropriate to the claimant. The total credit for overseas tax is limited to the net amount of tax payable by the claimant.

Unilateral relief may be claimed, except in the case of the Republic of Ireland, where tax has been paid in a country to which bilateral arrangements do not apply. It is also available where bilateral arrangements with a particular country do not cover the particular kind of income in question, such as royalties arising in the United Kingdom of South Africa. The unilateral arrangements follow the general patterns adopted in bilateral arrangements with certain important modifications.

Unilateral relief is applicable in respect of all overseas taxes which correspond to income tax and profits tax in the United Kingdom and also to provincial and state taxes in the Commonwealth, but no relief is in any case available for municipal taxes or taxes levied by local bodies. Relief is now given in full on the aggregate amount of the

United Kingdom taxes payable on the overseas income. Any amount unrelieved is allowed as a deduction in computing the amount of overseas income to be assessed to income tax and profits tax in the United Kingdom.

As mentioned earlier, a special arrangement applies in respect of double taxation relief between Great Britain and the Republic of Ireland. Accordingly, a company managed and controlled in Great Britain is not assessable to Irish income tax in respect of any profits or premises in the Republic. The income which is not charged to tax must, however, be included in the return of total income assessable to United Kingdom income tax. The annual value of the company's premises in the Republic is therefore an allowable deduction in computing its profits under Schedule D. An United Kingdom company is also not liable to Irish corporation profits tax on its industrial or commercial profits, unless the trade or business is carried on through a permanent establishment in the Republic, in which event only the profits from sources within the Republic are subject to Irish tax. The amount payable is, however, allowed as a credit against the United Kingdom profits tax.

Overseas taxes always rank for relief in respect of dividends arising from an overseas company to its holding company in the United Kingdom, whether the dividend relates to ordinary or preference shares, if in the latter case the dividend is received by a company which controls 50 per cent or more of the voting power in the foreign company. Where the laws of an overseas country prevent the United Kingdom company from acquiring more than 50 per cent of the ordinary shares in order to make the overseas company a subsidiary of the United Kingdom company, discretionary relief may be obtained in marginal cases where unilateral relief is inapplicable.

Relief is also available against multiple taxation where a dividend is paid to a company resident in the United Kingdom from an overseas company to which bilateral arrangements apply and the overseas company has itself received a dividend from a company resident in another territory to which bilateral arrangements apply, and the second company likewise has received dividends from a third company in another bilateral territory, and so on. The whole of the foreign taxes can be traced back and included in a claim for tax relief by the resident company in the United Kingdom which receives the dividend, up to the point where the income was taxed in a non-commonwealth country with which bilateral arrangements have not been made. In practice, the benefits of analysing the multiple source of dividends and profits from overseas is worthwhile only to a limited extent.

Tax is deductible from all dividends paid by a United Kingdom company which has obtained overseas tax relief, at the full standard rate in force in this country at the due date of payment of the dividend. This arrangement enables the company to recover from its shareholders their proportions of the United Kingdom income tax and of the overseas tax to the extent of the double taxation relief obtained by the company. Each company within a group makes its own claim for any relief due and determines its appropriate rate in the pound by relating

the credit to its statutory income for the year of assessment, if necessary by apportionment when the accounts year is not coincident with the year of assessment. The rate so ascertained is applicable to any dividend paid to the principal company or other shareholders. The holding company calculates in similar manner its own rate of relief, by adding the relief deemed to have been received by it in respect of dividends from subsidiaries in the year of assessment to any relief received directly. The aggregate is then divided by its statutory income for that year, again by apportionment between two years of assessment if necessary. The "net United Kingdom rate" is then ascertained by deducting the rate of relief thus calculated from the standard rate in force at the date the dividend becomes payable. The taxpayer can claim relief, or repayment, according to his circumstances, in respect of the tax deducted from the dividend to the extent of the "net United Kingdom rate"; being the net rate payable by the United Kingdom company, after taking into account bilateral, unilateral and Dominion income tax relief. Accordingly, the company is obliged to include particulars of the net rate on its dividend counterfoils. Unless repayments were restricted to the net United Kingdom rate, the aggregate repayments by the Inland Revenue to shareholders could exceed the net amount of tax paid by the company.

CHAPTER 32

GROUP ACCOUNTS

A HOLDING company is under a statutory obligation to present group accounts to the general meeting when its own accounts are submitted, except in certain cases where this requirement is relaxed. The requirement does not apply to a company which is at the end of its financial year a wholly-owned subsidiary of another company incorporated in Great Britain. A wholly-owned subsidiary is defined for this purpose as one which has no members except its holding company, and the holding company's wholly-owned subsidiaries and its or their nominees.

However, the accounts of each subsidiary need not be dealt with in the group accounts if the directors of the holding company are of the opinion regarding a particular subsidiary that it would be misleading or impracticable or would be of no real value to the members of the company in view of the insignificant amount involved, or would involve expense or delay out of proportion to the value to the members of the company. Apparently, if the same conditions apply to all subsidiaries, group accounts need not be produced at all. A subsidiary may also be omitted from group accounts if, in the opinion of the directors, its inclusion would be harmful to the business of the company or any of its subsidiaries or undesirable in that the business of the holding company and subsidiary are so different that they cannot reasonably be treated as a single undertaking. Permission of the Board of Trade is necessary before these two last-named exceptions can apply. The overriding statutory requirement to show a true and fair view should avoid the application of these exceptions where the effect whilst insignificant for each company taken separately is not, however, insignificant when all are considered together.

Latitude is permitted in the form of group accounts laid before the general meeting of a holding company. Indeed, it is expressly provided in the Act that the group accounts may be wholly or partly incorporated in the company's own balance sheet and profit and loss account. The accounts should be presented in such a form as to be readily appreciated by the members of the company, and, if not presented in the form of consolidated accounts, should be at least as informative. The precise form of group accounts will depend upon the circumstances of each case. For example, consolidated accounts may mislead where a strong position of one subsidiary is dwarfed by the weak position of another. As the interests of members of a holding company are affected by the financial results of its subsidiaries, at least the same information should be available to them as the group would publish if it were a separate legal entity, together with a disclosure of any special features such, for example, as may arise from the predominant position of certain subsidiaries. Accordingly, it is desirable that any aggregate of profit or loss of the group should be disclosed in such a way that

aggregate profits are differentiated from aggregate losses. In so far as a subsidiary has sustained a material loss which it cannot cover by an allocation from its own reserves, the directors of the holding company should also consider whether a relative provision should be made in its own accounts to cover depreciation of its investment in the subsidiary. Any provision so made should preferably be disclosed in the appropriation section of the profit and loss account of the holding company, whether met out of current profits or from amounts withdrawn from reserves or retained profits of previous years.

Consolidated accounts bring together all the final accounts of the holding company and its subsidiaries in order to show the combined financial position of the group as if it were a distinct entity. The consolidated balance sheet shows the aggregate assets and liabilities of the group and their distribution, the aggregate revenue balance of the group so far as it concerns the holding company and the aggregate interest of outside shareholders (*i.e.*, shareholders other than the holding company or its subsidiaries) in share capital, reserves and retained profits. The consolidated profit and loss account shows the aggregate trading results of the holding company and its subsidiaries relative to the holding company and the results of the subsidiaries relative to minority interests.

Directors should not necessarily confine the preparation of group accounts to the cases required by statute, but should provide them in all other cases where desirable in the interests of members. In any case, each company must also prepare its own profit and loss account and balance sheet to give a true and fair view of its earning power and financial position. The creditors of a sub-group, consisting of a holding company which is itself a wholly-owned subsidiary of another British company and its subsidiaries, do not usually have access to the financial position of the sub-group. In these cases, outside interests should have regard to the separate accounts of the company concerned rather than the consolidated accounts for information regarding the financial standing of the company. The exemption from preparing sub-group accounts does not, however, apply to wholly-owned British companies which are immediate subsidiaries of foreign undertakings. The British parent company is under the same obligations as other holding companies which are not wholly-owned subsidiaries to prepare group accounts for filing and inspection at Bush House.

The absence of consolidated or other form of group accounts or the omission from the consolidated accounts of any subsidiaries does not exempt a holding company from reporting to its shareholders as to the trading results of subsidiaries which have been omitted from the accounts. In such cases a statement must be annexed to the balance sheet to explain the exclusion, although no obligation arises to name the particular subsidiary. The statement must disclose the net aggregate amount of the revenue profits less losses (or *vice versa*) of the subsidiaries covered in the holding company's accounts and also the amount relative to the holding company but excluded from its accounts. In each case, the figures must be taken for the respective financial years of the subsidiaries ending with or during that of the

holding company and for their previous financial years since they respectively became the holding company's subsidiary. The statement must also specify any note or saving contained in the accounts of a subsidiary and any qualification contained in the report of the auditors on such accounts if the note or qualification is not covered by the holding company's accounts and is material to the members of the holding company. To the extent that this information is unobtainable, a statement must be given accordingly. The aggregate interests of the group in companies not consolidated, whether in shares or indebtedness, must be shown separately in any consolidated balance sheet which is prepared as if this were the balance sheet of a separate company owning subsidiaries. This is required not only to deter directors from abusing their discretion, but to enable members of the holding company to ascertain their aggregate interest in the group and its accumulated earnings.

Preferably the financial year of the holding company and its subsidiaries should coincide. Accordingly there is a general obligation on the directors of a holding company to so arrange, except where good reasons exist to the contrary. If subsidiaries have financial years whose endings do not coincide with that of the holding company, a statement must be annexed to the consolidated balance sheet or, if one is not prepared, to the balance sheet of the holding company, showing the reason why the directors do not consider that the subsidiaries' financial years should not end with that of the holding company and the dates on which the subsidiaries' financial years ending immediately prior to that of the company respectively ended or the earliest and latest of those dates. Where the financial year of a subsidiary and its holding company do not coincide it is necessary, unless the Board of Trade in agreement with the holding company's directors otherwise directs, for the group accounts to deal with the subsidiary's accounts for the financial year prior to or coincident with that of the holding company. Any difference between the closing date of the accounts of a subsidiary and the date of consolidation may make the group accounts misleading, as, for example, where a subsidiary suffers a trading loss or material inter-company transactions occur during the intervening period. Where inter-company transactions have taken place of an isolated nature, little difficulty may arise in making corresponding adjustments to agree the inter-company balances as at the date of consolidation. Other cases arise when simple adjustments of this nature are impracticable, although an assumption may be possible regarding the headings of account affected. The preferable course is to disclose the fact by stating the difference in the consolidated balance sheet as, for example :

" Net difference arising on inter-company accounts
from variations in dates of balance sheets . £—— "

The Board of Trade may facilitate the coincidence of the financial years of companies within a group by relaxing for a particular year the statutory requirements as to the holding of an annual general meeting, and the making of an annual return and for postponing the submission of relevant accounts to the next subsequent annual general meeting.

Profits earned by subsidiary companies before acquisition by the group of the relative shares are of a capital nature from the viewpoint of the group and are so treated in consolidated accounts. For example, Company H. purchases the whole equity of Company S. for £125,000 on the basis of S.'s balance sheet :

Capital contributed	£ 100,000	Net assets	£ 125,000
Pre-acquisition profits	25,000		
	<hr/> 125,000 <hr/>		<hr/> 125,000 <hr/>

H. pays £125,000 for the equity of S. and whilst S. may properly pay out dividends to H. in respect of the pre-acquisition profits, the amount received by H. is really a repayment of part of the purchase price paid for S., because, after payment of dividends from this source, the net assets remaining will be correspondingly reduced by cash outgoings. Thus, the treatment of dividends in respect of pre-acquisition profits is conditioned by the fact that the amount received represents the partial return of the equity acquired by the group through its investment. Whichever company in the group makes the investment or whether several companies in the group do so together to enable the group to acquire control of the subsidiary, the pre-acquisition profits are not regarded as being available by the holding company for ultimate distribution as dividends to its shareholders.

Procedure in Consolidating Accounts

It will be appreciated that the preparation of consolidated accounts often gives rise to a number of accounting problems which need solution in determining the profit and financial position of the group as a whole :

- (1) Re-classification and re-grouping of assets and liabilities, so as to disclose a fair view of aggregate values.
- (2) Elimination of the effect of inter-company transactions and shareholdings, for these cancel out one another from the point of view of the group. Inter-company profits must also be eliminated before it is possible to arrive at the true net profit of a group.
- (3) Adjustments to ascertain minority interests, being the amounts attributable to outside shareholders.

Procedure is facilitated when all the companies within a group have uniform accounting systems both as regards form, methods of valuing assets, dividend, depreciation and taxation policies, treatment of dividends received and their incidence in reducing the value of investments in respect of pre-acquisition profits. In the absence of uniformity, each set of figures must be examined and possibly re-arranged to avoid anomalies and distortion when consolidated. Difficulties may arise in consolidating the accounts of foreign subsidiaries, where owing to differences in legal requirements and of practice, their results may be stated otherwise than on the basis used by the holding company.

Even with uniformity of treatment, adjustments are needed to eliminate any inter-company transactions which affect the net worth of the group. Clearly inter-company transactions require to be excluded from consolidated accounts, just as inter-departmental or inter-branch transactions within a company are excluded from its profit and loss account. Where sales-turnover figures are published, it is necessary to eliminate any inter-company purchases and sales. Similar adjustment is needed for other debtor-creditor relationships which exist, for example, those represented by amounts for inter-company services or inter-company interest charges. Adjustment may be required where turnover figures are not disclosed to the extent that inter-company transactions have been made on a profit basis. From the group standpoint, trading profits are earned only when the goods actually pass to the public, and it is desirable to satisfy the accounting convention that unrealized profits are not to be taken into account. If one member of a group sells goods to another at a price which shows a profit in the books of the selling member and if the goods have in turn been sold outside the group, then, as an actual profit has been realized by the group as a whole, the goods do not form part of the group stock-in-trade at the next accounting date, and no adjustment of profit is necessary. When, however, there is an unrealized profit on goods still in stock, the amount is eliminated by reducing the figures shown for stock and work-in-progress, unless there are outside shareholders in the subsidiary companies, in which event a realized profit to them augments their interest. In this case, it is usual to eliminate only the holding company's proportion of the profits, although American practice excludes the whole, as such profits are, in effect, controlled by the holding company, because it is in a position to influence price-fixing policy. They are thus considered as entirely unrealized. Further adjustment may be required to eliminate profit when fixed assets are sold within a group on a profit basis and, possibly, to make corresponding adjustments to depreciation charges made by the company which has acquired the asset.

The consolidated profit and loss account should not show any income from or charges by subsidiaries, except amounts applicable to subsidiaries whose accounts are not consolidated. Likewise, the only inter-company dividends included in the consolidated profit and loss account are those from subsidiaries which are not consolidated. These amounts may be shown as one sum. The relevant information regarding profits of subsidiaries not consolidated and the extent of their omission from the accounts of the holding company may be shown by way of note, either in the holding company's accounts, or in the consolidated account or in a statement annexed. Dividends paid by subsidiaries to the holding company normally appear net in the accounts of the subsidiaries but gross in the profit and loss account of the holding company. The adjustment made to gross up the amounts in the books of the holding company needs reversing for consolidation purposes in order to match its counterpart in the books of the subsidiaries in order that the dividends may be set-off against one another in the consolidating schedules. Inter-company dividends receivable

from fellow subsidiaries whose profits are consolidated require elimination to avoid duplication in the group accounts. Interest on debentures and loans appears in the consolidated profit and loss account in respect of debentures or loans which are external to the group, but the amounts are eliminated as cross-entries when internal to the group. Apportionment is also needed of the profits of subsidiaries appropriate to outside shareholdings.

Taxation provisions present difficulties, especially if there are foreign subsidiaries or subsidiaries which are assessed for tax on a basis different from that applicable to other companies in the group. In principle, to the extent that the holding company consolidates or purports to take into account profits of its subsidiaries, provision should be made for the full cost of so doing. For example, when the accumulated profits of a foreign subsidiary which is not liable to United Kingdom income tax on its profits retained abroad are ultimately remitted to the holding company, liability to tax will arise, subject possibly to double taxation relief. The prospective taxation liability of the holding company in this respect is a matter of estimation and may be dealt with either by increasing the charges made for taxation in the group accounts or by appending an appropriate note. In other cases, adjustments may be needed for future taxation. Where, contrary to the normal group practice, future taxation is not provided by, say, a new member of the group, an estimated amount may be shown separately in the consolidated profit and loss account, or a note may be attached in order to counter the implication that the amount shown for future taxation in the consolidated accounts is the total. The amount of any future taxation shown as a reserve should be apportioned to reflect minority interests.

Group Profit and Loss Account

The holding company may present its own profit and loss account framed as a consolidated profit and loss account dealing with its own accounts and those of all or any of its subsidiaries, provided it complies with the requirements as to consolidated profit and loss accounts and shows how much of the consolidated profit or loss for the financial year is included in the accounts of the holding company. This may be done by showing as a deduction from the consolidated figures the amount of profits undrawn as dividends but which have accrued for the benefit of the holding company in the subsidiaries. Thus the balance shown for the year coincides with that which would be shown by the separate profit and loss account of the holding company if this were compiled independently. If this is done, a separate profit and loss account need not be published by the holding company.

Disclosure is required in the profit and loss account of the holding company or in a statement annexed of the respective aggregate amounts of directors' emoluments, present and past directors' pensions and similar payments and compensation paid to past or present directors for loss of office. The aggregate amounts shown under each of the headings must distinguish between amounts receivable in respect of services as a director and in respect of other services or offices. The

amounts must be disclosed to the full extent that information is contained in the company's books or papers, or the company has the right to obtain information from those concerned. Directors, including persons who have been directors within the past five years, are obliged to give notice to the company of these matters relative to themselves as the company requires for this purpose.

The amounts shown must include and distinguish all sums paid or receivable during the financial year from the parent company, its subsidiaries and any other person. The reference to "any other person" covers the case where control of a company is sold and payments for compensation are made by the purchaser to the director. The term "subsidiary" has a specially extended meaning for this purpose to cover the case where a director of one company is by virtue of that company's nomination, direct or indirect, the director also of another company which is not otherwise regarded as a subsidiary. In respect of the provisions concerned with emoluments and pensions, the other company must, in this special context, be a subsidiary when the relative service was rendered and, regarding the provisions as to compensation for loss of office, must have been so regarded immediately before the loss of office. Amounts may be excluded which are paid to or received by a director merely to the account of the company itself or of any subsidiary and sums which a director holds on trust. Thus the amounts disclosed in the profit and loss account of the holding company are the figures appropriate to the directors of the holding company as directors of the group. As the directors of subsidiaries who are not also directors of the holding company have no control from the point of view of the group, the amounts applicable to them are not regarded as particularly interesting to the shareholders of the parent company.

Subsequent disclosure is separately required of any sums which are not shown in the accounts for the relevant year, because the person receiving payment is liable to account for them to the group, but the liability is afterwards wholly or partly released or is not enforced within a period of two years. Likewise subsequent and separate disclosure is required as early as practicable of any sums paid by way of expense allowance which are charged to United Kingdom income tax after the end of the relevant financial year.

The term "emoluments" in relation to a director includes fees and percentages, any sums paid as expense allowances and charged to United Kingdom income tax, any contributions paid in respect of him under any pension scheme and the estimated money value of benefits in kind. Pensions are included whether paid to or receivable in respect of the services of a past or present director, or on his nomination, or by virtue of dependence on or other connections with him, to or by any other person, apart from the amount of any pensions payable or receivable under a scheme whereof the contributions are substantially adequate for the maintenance of the scheme. There is no need to disclose amounts payable to a genuine contributory pension scheme, but disclosure is necessary of amounts which, although apparently paid as pensions, are really payments in respect of remuneration for past or

present services. Compensation paid for loss of office includes sums paid as consideration for or in connection with a person's retirement from office. Whilst payments of this kind rest upon the decision of the directors, their amounts have to be disclosed to shareholders, as a safeguard against abuse. These requirements as to disclosure of directors' emoluments do not apply for the purposes of the consolidated accounts of a holding company and its subsidiaries, as the relevant information will be contained in the holding company's own accounts.

A consolidated profit and loss account is prepared as a group statement when the holding company presents its own accounts separately. Where minority interests exist, it is unusual to apportion each item in the consolidated profit and loss account in the ratio of the respective interests of the parent company and minority members of subsidiaries. The practice is to show as group trading profits the total amount of profits earned and an amount deducted in respect of minority interests, with the balance carried down to the appropriation section of the account. Accordingly, dividends paid by subsidiaries to minority interests are not disclosed in the published consolidated profit and loss account. This information is not considered relevant to the shareholders of the holding company.

Consolidated Balance Sheets

The consolidated balance sheet is designed to show, as far as practicable, the financial position of the group just as if the holding company had originally acquired the assets of its subsidiaries subject to their liabilities and outside interests, instead of purchasing shares in them.

SIMPLIFIED CONSOLIDATED BALANCE SHEET AT 31ST DECEMBER, 195

<i>Interests of Ordinary Shareholders of the Holding Company</i>			<i>Fixed Assets</i>		
	£	£		£	£
Ordinary shares	700,000		Land and buildings	150,000	
General reserves	200,000		Machinery and plant		
Retained profits	50,000		(at cost less depreciation)	605,000	
		950,000			755,000
<i>Borrowed Funds</i>			<i>Investments</i>		
Mortgage debentures	100,000		In companies not consolidated		200,000
Preference shares	150,000	250,000			
<i>Interests of Minority Shareholders</i>			<i>Current Assets</i>		
In share capital, reserves and retained profits of subsidiaries		175,000	Stocks and work-in-progress	250,000	
<i>Current Liabilities</i>			Sundry debtors	160,000	
Sundry creditors	80,000		Marketable investments	35,000	
Accrued expenses	5,000		Cash at bank	50,000	
Current taxation	20,000	105,000	Cash in hand	2,000	
				497,000	
			Goodwill including cost of control	28,000	
		<u>£1,480,000</u>			<u>£1,480,000</u>

Current Assets and Liabilities.—The holding company should ensure that the financial resources of the group are actively employed and for

this purpose may act as internal banker to the group, replenishing the separate banking accounts or depleting them as circumstances require. Strict trading terms should be the rule, whilst capital expenditure by subsidiaries should require the special sanction of the parent company. Funds provided should be regarded as a loan or if permanent covered by scrip issued by the subsidiary to the holding company. Strict control of cash resources is essential. Definite loan limits when fixed should be maintained in order to avoid the risk of allowing a subsidiary to become a financial embarrassment to the group. Whether or not the aggregate amount of bank credit balances should be offset against the aggregate amount of overdrafts, and the net balance shown either as a credit balance or as an overdraft in the consolidated balance sheet, depends on the circumstances. It is appropriate to show the net figures if there is only one banker for the group and he has a contractual right to set-off credit balances against overdrafts.

Inter-company debit and credit balances are necessarily the same in total, so that any balance shown in the consolidated accounts represents indebtedness of or to subsidiaries not consolidated or companies which are fellow subsidiaries of the holding company. Inter-company balances may arise which are not self-eliminating in the consolidated accounts where the accounts of companies within a group are prepared at various dates. In this case, it is necessary, as already mentioned, to show the net balance on the appropriate side of the balance sheet under a heading such as "Net balance on inter-company transactions due to different accounting dates." Care is required, however, to ensure that the treatment of any net inter-company balance in this manner does not hide the true position. Anything in the nature of items in suspense should be included under their proper headings. For example, in the case of a holding company financing the operations of an unremunerative subsidiary, a suspense charge in the books of the holding company may be represented by trading losses of the subsidiary which should be written off. Whilst inter-group balances normally eliminate one another, it is not usually practicable, except sometimes in respect of taxation balances, to eliminate amounts owing by one company in the group to an outside creditor against amounts receivable by another company in the group from the same person.

When the amount shown in the consolidated balance sheet for proposed dividends is allocated separately to cover those payable to shareholders of the holding company and those payable to outside shareholders in subsidiaries, amounts shown in individual balance sheets in respect of inter-company dividends are eliminated except to the extent of minority interests. Where preference dividends remain unpaid by a subsidiary although covered by profits, the subsidiary's profit and loss account is, for consolidation purposes, charged with the dividend due and an accrued preference dividend account is treated as a liability in the balance sheet.

Fixed Assets.—It will be appreciated that inter-company investments are represented by inter-company assets consisting of fixed assets and working capital. Accordingly, the amount of these invest-

ments is replaced in the consolidated balance sheet by the amount of the underlying assets which they represent. Any difference between the amounts may be shown as a capital reserve on the "liabilities" side of the balance sheet where net assets exceed investments, or as goodwill on the "assets" side if investments exceed net assets. For if a business is acquired at a cost greater in amount than its net worth, it may be convenient to regard the excess as having been paid for goodwill. Alternatively, the difference may be shown as "cost of control", to indicate that it has arisen through the acquisition of group interests.

When the balance sheet values of assets held by subsidiaries do not truly reflect the amount paid for the assets in the price of the shares acquired by the holding company and the assets of subsidiaries are consolidated at their balance sheet values, a risk arises that premiums paid for shares in excess of their par value may be allocated as "goodwill" or "cost of control", whereas, in fact, the premiums really represent in whole or part the price paid for various assets in excess of their balance sheet values. Moreover, future depreciation provisions made in the consolidated accounts may prove inadequate if the values of net assets to the group are understated.

It is desirable to eliminate any pre-acquisition provisions for depreciation where book-figures of assets in the accounts of subsidiaries are used in the consolidated balance sheet. This procedure recognizes that the history of a company before it became a member of the group is not part of the history of the group and has the effect that the consolidated figures are, as far as practicable, stated on the same basis as would have been used had the assets been acquired instead of the shares. It also avoids creating a false impression that the consolidated profit and loss account has been charged with the aggregate amounts shown for depreciation, inclusive of pre-acquisition charges made for depreciation by subsidiaries.

If a holding company acquires the shares of a subsidiary by stages, a question of interpretation emerges as well as an accounting problem. The cost to the group of the subsidiary's fixed assets is determined as at the date the subsidiary became a legal subsidiary of the group, although the overall requirement to disclose a true and fair view may justify the calculation being made when substantial share-holdings are later acquired if such is the case.

Adjustment of asset values is also required if capital assets are sold by one member of the group to another on a profit basis. The profit element is eliminated to show capital expenditure in the consolidated balance sheet at its true cost to the group. If the amount is material, corresponding adjustments of depreciation charges are required in the consolidated accounts, between consolidated depreciation charges and capital reserves. On the other hand, capital losses on inter-company transactions may be treated as realized losses on the ground that the loss constitutes merely a provision for additional depreciation which revaluation has shown to be necessary.

Inter-company Investments.—These are often shown separately from fixed assets in balance sheets. Share holdings in and fixed loans to

subsidiaries and the aggregate indebtedness of the holding company to subsidiaries are distinctly stated in the balance sheet of the holding company. So far as the holding company's accounts are concerned, there is also a general requirement, whether or not the holding company is itself a subsidiary of another company, that a note must appear in the balance sheet or in a statement or report annexed, of the number, amount, and description of shares in and debentures of the company held by its subsidiaries or their nominees, except in certain special cases. Current indebtedness is, of course, shown in the consolidated balance sheet under the heading of either current assets or current liabilities.

Inter-company shareholdings are not assets of the group as a whole, so that, in the process of consolidating the accounts of the companies concerned, these amounts are eliminated by setting off the share capital in one company by the relative investment of another. Accordingly, the final balance of shareholdings represents only capital held outside the group. In the consolidated balance sheet, the amount which appears as an investment under the heading of "shares in companies within the group" or "shares in companies not consolidated", represents the aggregate book value of shares in subsidiaries whose assets and liabilities are not consolidated and shares in fellow subsidiaries of the holding company. Other investments are shown in their various categories as quoted, unquoted, trade, or otherwise, just as in any ordinary balance sheet. Incidentally, in order to ensure a full disclosure of inter-group indebtedness, there is a requirement that the balance sheet of a subsidiary company, whether or not it is itself a holding company, shall show the aggregate amount of its indebtedness to all bodies corporate of which it is a subsidiary or a fellow subsidiary and the aggregate amount of the indebtedness of all such corporate bodies to it, distinguishing in each case indebtedness in respect of debentures and otherwise. Therefore, if A. and B. are subsidiaries of H., and X. and Y. are their respective subsidiaries, then any balance of indebtedness between X. and Y. and each of the other companies must be included in their respective balance sheets, in accordance with this requirement.

Provisions made in the holding company's own accounts against investments in subsidiaries are re-allocated according to their nature in arriving at the consolidated figures. For example, provisions made for losses by subsidiary companies should be transferred to the profit and loss account, against which the deficit from the subsidiary can then be eliminated. Amounts written off or dealt with as provisions against the value of interests in subsidiaries should, for consolidation purposes, be referred to the particular class of assets concerned or, where this is impracticable, against the amount shown for goodwill.

The accounting procedure is sometimes adopted of "branching" the results of subsidiaries. In this way the holding company reflects in its accounts the net profit earned by subsidiaries since their acquisition by the group, excluding any part attributable to minority shareholders, irrespective of whether or not these amounts have been declared for dividend by the subsidiaries. These amounts are not, however, usually regarded as available for distribution as dividends by the hold-

ing company to its own shareholders. Thus, the holding company which adopts this arrangement credits its own revenue account each year with amounts equal to its share of the net earnings of subsidiaries and subsequently debits to the same account an amount representing dividends undeclared which is transferred to a special investment reserve, included with capital reserves in the balance sheet as not being normally available for dividend payments. An opposite entry increases the amount shown in the balance sheet for investments in subsidiaries. This practice has little to commend it where consolidated accounts are compiled, because it tends to obscure the difference between the legal reserve position of the holding company as such as shown by its own balance sheet and the reserve position of the group. Accordingly, in consolidating accounts where "branching" has been adopted, the amount added to the amount of investments in subsidiaries needs to be eliminated, as the case may be, against a like deduction from the amount of retained profits or investment reserves.

Inter-company debentures are eliminated during the process of consolidation, so that the consolidated balance sheet usually shows only the amount of debentures and debenture stock held outside the group by minority interests.

Pre-acquisition Revenue Reserves.—When control of a company is acquired, all retained profits of this subsidiary, at the date of the acquisition of its shares, are theoretically paid for by the holding company as part of the capital outlay made in acquiring the investment.

Whilst such pre-acquisition profits are still of a revenue nature so far as the subsidiary is concerned and may therefore be distributed as dividends to its members, including its holding company, it is not permissible for the holding company in turn to distribute the amounts received as dividends because they are of a capital nature so far as the holding company is concerned. Instead, the amounts are shown either as capital reserves of the holding company and the group or used to reduce the cost of the investment or of share premiums paid on acquisition. Conversely, the pre-acquisition revenue losses of a subsidiary are treated as capital losses and added to the cost of the investment or shown as goodwill in the consolidated balance sheet. This rule as to the capitalization of pre-acquisition profits applies not only where the holding company or another company in the group acquires the shareholding in the subsidiary, but, also, when the shares acquired by several companies in the group secure control of a company to make it a subsidiary of the group. When the group acquires only a partial interest in a subsidiary, it accordingly obtains only a similar interest in the capital and revenue reserves of the subsidiary, so that the balance of these reserves and a similar proportion of pre-acquisition profits are shown under the heading of "minority interests" in the consolidated balance sheet.

Thus, in consolidated accounts, the accounts shown as retained profits and general reserves represent true revenue to the group, equal in amount to the surplus revenues of the holding company together with those of subsidiaries to the extent that the latter have

been earned since the respective dates of their acquisition by the holding company. Post-acquisition profits earned by subsidiaries are, of course, revenue to the group and may be used for payment of dividends as revenue to members of the group.

When a subsidiary with revenue reserves at the date of acquisition subsequently incurs losses which are written-off against the revenue reserves in its own accounts, the losses are dealt with in the consolidated accounts as charges against group revenues or as revenue deficits carried forward, because the pre-acquisition reserves have been capitalized in the group accounts. As the post-acquisition losses incurred by a subsidiary really reduce the group profit there is no need to disclose the source or amount of such losses in the consolidated accounts. Nevertheless, the wording describing the trading profit in the consolidated profit and loss account needs qualification, for example, "net profit of the group, less loss by S. Ltd." and the loss, if significant, calls for mention in the directors' report or in the chairman's speech. If the holding company decides to relieve the losses of a subsidiary, the balance of retained profits shown in the profit and loss account of the holding company will be reduced by the amount of the loss eliminated from the profit and loss account of the subsidiary. In other cases, where serious losses are anticipated, the holding company may limit its maximum loss to the cost of its investment in the subsidiary, and depreciate the amount of the investment shown in its balance sheet. Preferably, the accounts of the subsidiary in this case are excluded from consolidation, but, if consolidated, the internal depreciation of the asset shown as an investment in the accounts of the holding company is not reflected in the consolidated accounts where the loss appears as a trading loss.

If a company, after its acquisition as a subsidiary, capitalizes its revenue reserves and makes a scrip issue, the extent to which they are issued to the group from pre-acquisition revenue balances automatically adjusts the position in the consolidated balance sheet and to this extent renders unnecessary any other adjustment for a pre-acquisition revenue balance.

When a subsidiary is acquired which already has a subsidiary, the value of the sub-subsidiary will have been taken into account by the subsidiary to the extent of its ownership in fixing the price paid for its shares by the holding company. The holding company capitalizes both the revenue balance of the subsidiary at its date of acquisition and also the subsidiary's share of the revenue balance of the sub-subsidiary at the same date, although the subsidiary will have capitalized the revenue balance of the sub-subsidiary as at the date of its original acquisition. When a subsidiary acquires control of another company as a sub-subsidiary to the group, both the holding company and the subsidiary capitalize the appropriate portion of the pre-acquisition revenue balances of the sub-subsidiary. No adjustments of this kind are, of course, required in respect of inter-group share transfers.

The extent to which pre-acquisition revenue balances of subsidiaries need adjustment in future consolidated balance sheets depends on the amounts which have been distributed as dividends to the holding

company and whether or not these balances have been wholly or partly applied as capital reserves or in reducing the cost of the investment in the consolidated balance sheet. An "over-simplified" example may be used to illustrate the general procedure.

Balance Sheet of Holding Co.

Shares	£ 100,000	Sundry net assets	£ 80,000
		Cash	20,000
	<hr/> 100,000 <hr/>		<hr/> 100,000 <hr/>

Balance Sheet of Subsidiary

Shares	£ 8,000	Sundry net assets	£ 7,000
Retained profits.	2,000	Cash	3,000
	<hr/> 10,000 <hr/>		<hr/> 10,000 <hr/>

Assume the holding company buys S. for £10,000, then its balance sheet becomes :

Balance Sheet of Holding Co.

Shares	£ 100,000	Sundry net assets	£ 80,000
		Investments	10,000
		Cash	10,000
	<hr/> 100,000 <hr/>		<hr/> 100,000 <hr/>

If the subsidiary then pays to the holding company £2,000 as dividends, we have :

Balance Sheet of Holding Co.

Shares	£ 100,000	Sundry net assets	£ 80,000
		Investments	8,000
		Cash	12,000
	<hr/> 100,000 <hr/>		<hr/> 100,000 <hr/>

or as follows :

Shares	£ 100,000	Sundry net assets	£ 80,000
Capital reserves	2,000	Investments	10,000
		Cash	12,000
	<hr/> 102,000 <hr/>		<hr/> 102,000 <hr/>

and S's. balance sheet is then :

Balance Sheet of Subsidiary

Shares	£ 8,000	Sundry net assets	£ 7,000
		Cash	1,000
	<hr/> 8,000 <hr/>		<hr/> 8,000 <hr/>

so that the consolidated balance sheet in either case is :

Consolidated Balance Sheet

Shares	£ 100,000	Sundry net assets	£ 87,000
		Cash	13,000
	<hr/> 100,000		<hr/> 100,000

In order to simplify the preparation of consolidated balance sheets in case of the large groups where shareholdings in particular subsidiaries may be held by more than one member of the group, consideration may be given to reducing the amount of the holding company's revenue reserve and retained profits by the amount of the pre-acquisition profits of subsidiaries and showing investments in subsidiaries "at cost adjusted for total pre-acquisition revenue balances". If this is done, all dividends henceforth declared by subsidiaries may be regarded as revenue to the group, thus obviating any need to make future adjustments in this respect in compiling the consolidated accounts.

Goodwill (as Cost of Control).—The amount shown for goodwill in the balance sheets of the various member companies of a group appears in the consolidated balance sheet as a composite item, usually together with rather than separately from, the amount of goodwill representing the "cost of control" which arises when a subsidiary is acquired.

The amount representing cost of control, which is to appear in the consolidated balance sheet of the group, in addition to goodwill, is calculated as the difference between the adjusted cost of the investment and the par value of the holding shares. The adjusted cost of the investment is ascertained by the cost of the investment less any pre-acquisition revenue losses and amounts representing depreciation of assets and the deduction of any pre-acquisition profits, revenue reserves and capital reserves, including those arising from an under-valuation of assets. The excess is regarded as goodwill when the adjusted cost exceeds the par value of the shares. On the other hand, when the par value of the shares exceeds the adjusted cost, the difference represents an allowance for "badwill" and appears in the consolidated balance sheet as a capital reserve.

For example, assume the following balance sheet for Company S., in which H. has an investment. Assume, on the one hand, that H. acquires all the shareholding of S., and, on the other hand, that H. acquires only 75 per cent of the shareholding of S. for the same amount invested.

	S. £		S. £
Capital	40,000	Tangible assets	58,000
Creditors	8,000		
Capital reserve	2,000		
Revenue reserve	4,000		
Retained profits	4,000		
	<hr/> 58,000		<hr/> 58,000
Balances			

The amount representing cost of control is derived as follows :

	100% Holding		75% Holding
Cost of investment	£ 43,000		£ 43,000
Less capital reserve	2,000		
Less revenue reserve	4,000		
Less retained profits	4,000	10,000	75%
			7,500
Adjusted cost	33,000		35,500
Par value of shares	40,000	75%	30,000
Negative goodwill	7,000	Goodwill	5,500

The amount of £5,500 represents goodwill to the holding company, whereas the amount of £7,000 represents “badwill” which will appear in the consolidated balance sheet as a capital reserve.

When the shares of a company stand at a premium, advantage may be taken of this fact in acquiring a subsidiary to offer some of the company's shares at a premium to the members of the proposed subsidiary company at a rate of exchange depending on the relative market values of their shares. For example, if a company is acquired for £50,000, as consideration for which the holding company issues £40,000 of its ordinary shares at 25s. each to the members of the subsidiary company, where the simplified balance sheet of the subsidiary is as follows, no cost of control is involved :

Share capital	.	.	sets	.	.	.	£	60,000
Creditors	.	.	10	.	.	.		
Retained profits	.	.	10,	.	.	.		
			<u>60,000</u>					<u>60,000</u>

the position is as follows :

	£
Cost agreed	50,000
Retained profits	10,000
	<hr/>
Adjusted cost	40,000
Par value	40,000
	<hr/>
Cost of control	Nil
	<hr/>

It will be observed that, in this example, the holding company has acquired 40,000 shares in the subsidiary for £40,000 against an open market value of £50,000. The balance sheet of the holding company is increased on the liabilities side by contributed capital £40,000 and share premium £10,000 and on the assets side by investment in subsidiary £50,000.

In acquiring control of a company, the holding company may discount its offer in anticipation of certain losses arising after acquisition.

The subsidiary company may capitalize subsequent losses and carry them temporarily as a fictitious asset in its balance sheet under the heading of "cost of re-organization", although it may be decided that a preferable course would be to leave their aggregate cost at the debit of profit and loss account as if it were a trading loss. Where the amount is capitalized and to the extent that the losses were not discounted in the transaction, the item may come under the heading of "cost of re-organization" in the consolidated balance sheet until eventually eliminated by appropriation of profits earned by the subsidiaries. So far as post-acquisition losses were discounted on acquisition, it would be necessary when compiling the consolidated balance sheet to add the amount of this fictitious asset to the "cost of control account".

Minority Interests.—It is usual to disclose in the consolidated balance sheet the existence of outside interests in subsidiary companies, rather than to exclude the relative amount by eliminating a proportion of the various assets and liabilities of the subsidiaries from the consolidated balance sheet. Exclusion not only makes the consolidated balance sheet incomplete, but complicates the procedure of dealing with inter-company balances.

Normal practice is to show the interests of outside shareholders as a separate item on the liabilities side of the consolidated balance sheet, without distinguishing between holdings of share capital and relative reserves, or between the various types of capital held by minority interests.

The amount shown includes the nominal amount of minority shareholdings together with :

- (a) In the case of ordinary shares, their portion of capital and revenue reserves, plus or minus the amount of retained profit or accumulated losses respectively of the subsidiary.
- (b) In the case of preference shares, any unpaid dividends, in so far as there are insufficient profits available for this purpose.

It is desirable where minority interests include appreciable holdings of redeemable preference shares to detail these in order to indicate possible demands on the group's resources for redemption funds in due course. In some cases, dividends payable to minority interests are included in the total amount shown for outside shareholdings, but as this practice tends to mask the demands arising for dividend payments on the cash resources of the group the dividends payable to outside shareholders are preferably stated separately under the heading of current liabilities and provisions.

Whilst only the shareholders of the holding company are interested in the item of goodwill represented by the cost of control, it is only natural that minority shareholders are interested in the amount of goodwill shown in the balance sheets of the various subsidiaries. If a global amount is shown for goodwill in the consolidated balance sheet comprised partly of amounts in which all members are interested and partly of amounts in which members of the holding company only are interested, the balance sheet does not necessarily indicate the relative

sizes of the interests of the holding company and the minority shareholders in the net assets of the group. If the cost of control is separately stated in the balance sheet, the interest of the holding company in the net assets may be readily ascertained by deducting the cost of control from the holding company's shareholding. On the other hand, when negative goodwill arises on acquisition, which is represented by a capital reserve in the consolidated balance sheet, comparison may be made by adding the amount of this capital reserve to the holding company's share capital.

Alternatively, that part of the book value of goodwill which belongs to minority interests may be eliminated and their interests in the consolidated balance sheet accordingly restricted to the amount of their interests in the net tangible assets of the group. In this event, the share of the holding company in the consolidated net assets may be ascertained by deducting the amount attributable to minority interests from that of the consolidated net assets.

A further variation would be to assess the total value of goodwill for each subsidiary irrespective of the amounts shown in their balance sheets for goodwill, on the basis of the price paid by the holding company for the proportion acquired, and to adjust the amounts shown in the individual balance sheets accordingly for consolidation purposes. The objection to this procedure is that whilst the cost of control represents the facts as respects the holding company, it is not necessarily appropriate with a proportionate addition to cover minority holdings. The goodwill of a subsidiary to a holding company may well exceed the goodwill of the company as such, for example, when a majority holding is acquired to rationalize production or to limit competition.

The two methods of presentation of the minority interest first mentioned are exemplified below, on the assumption that a holding company pays £240,000 to secure a 75 per cent holding in a subsidiary, where the balance sheet of the subsidiary is summarized below :

	£		£
Share capital . . .	200,000	Net tangible assets . . .	180,000
Retained profits . . .	50,000	Goodwill	70,000
	<u>250,000</u>		<u>250,000</u>

The cost of control for a 75 per cent interest is £240,000 less 75 per cent of £250,000 = £240,000 - £187,500 = £52,500.

Assume, for simplicity, the balance sheet of the holding company is :

	£		£
Contributed capital . . .	740,000	Sundry net assets . . .	500,000
		Investment in subsidiary	240,000
	<u>740,000</u>		<u>740,000</u>

In accordance with the first method of presentation, the amount of £240,000 shown as an investment in the holding company's balance sheet would be replaced in the consolidated balance sheet by the following figures :

Net tangible assets	£	180,000
Goodwill	70,000	
Goodwill as cost of control	52,500	122,500
		<u>302,500</u> on the assets side.
Minority interests		<u>62,500</u> on the liabilities side.

Thus replacing the amount of 240,000 shown as an investment in the holding company's balance sheet.

The consolidated balance sheet would thus appear as :

Contributed capital	£	740,000	Sundry net assets	£	680,000
Minority interests	62,500		Goodwill	70,000	
			Goodwill as cost of control	52,500	
		<u>802,500</u>			<u>802,500</u>

Thus the proportion of sundry net assets and goodwill appropriate to the holding company is £740,000 — £52,500, or a total of £687,500, made up as follows :

Sundry net assets	£	500,000
75 per cent of £180,000	135,000	
	<u>635,000</u>	
Goodwill		
75 per cent of £70,000	52,500	
	<u>687,500</u>	

In the alternative method of presentation, the amount of £240,000 shown as investments would be replaced by :

Net tangible assets	£	180,000
Group goodwill 75 per cent of £70,000	52,500	
Cost of control to holding company	52,500	105,000
		<u>285,000</u> on the assets side.
Minority interest in tangible assets, i.e., 25 per cent of £180,000		<u>45,000</u> on the liabilities side.

Thus leaving . . . 240,000 shown as an investment in the holding company's balance sheet.

In this event, the consolidated balance sheet appears as :

Contributed capital	£	740,000	Sundry net assets	£	680,000
Minority interests	45,000		Goodwill	105,000	
		<u>785,000</u>			<u>785,000</u>

Thus the amount of sundry net assets appropriate to the holding company is £680,000 — £45,000 or £635,000 as before, whilst all the goodwill

belongs to the holding company, *i.e.*, 75 per cent of £70,000 = £52,500 + £52,500 for cost of control = £105,000.

Outside preference shareholdings in subsidiaries are merged in some consolidated balance sheets with the preference capital of the holding company in order to show the total preference capital of the group apart from inter-company holdings. In view of the fact that preference and minority ordinary shareholders in a subsidiary rank before all shareholders and creditors of the holding company, their common interest is preferably recognized by stating in the consolidated balance sheet the shareholding position of the group from the viewpoint of members of the holding company, by including outside holdings of preference share capital with minority holdings of share capital in subsidiaries.

The figure shown in the consolidated balance sheet for minority interests includes, in either case, an appropriate part of all retained profit, revenue reserves (including reserves for future income tax), and capital reserves (including share premiums and capital redemption reserves) arising from minority interests. Any losses sustained by subsidiaries, after depletion of any reserves and unappropriated balances of previous profit, reduce minority interests up to the extent of their par value, because the liability of shareholders is so limited. Accordingly, any balance of loss serves to reduce the reserves of the holding company in the consolidated accounts. If the holding company decides to liquidate such a subsidiary, a preferable course may be to show the accounts of the subsidiary separately.

Cross holdings of shares, in which companies hold shares in one another, are still allowed in so far as they existed prior to the operation of the Companies Act, 1948, and also between associated companies, but since the Act a subsidiary company has been prohibited from purchasing shares in its holding company. Even now a holding company may acquire a new subsidiary which may have in its assets, as an investment, shares in the holding company. The number, description and amount of the shares held by a subsidiary in the holding company must be noted on, or in a report or statement annexed to, the balance sheet of the holding company.

Cross holdings do not present difficulty in preparing consolidated accounts if the subsidiary is wholly owned, because the cross holding does not affect the consolidated revenue account figures. With partly-owned subsidiaries, however, calculations arise, because the subsidiary's profits falling to the holding company revert to the subsidiary to the extent of its equity interest in the parent company and the subsidiary also takes an appropriate part of the other profits of the holding company. A proportion of this amount then reverts from the subsidiary company according to the interest of the holding company and thus the process continues until the profits of both are finally allocated as between the other shareholders of the holding company and minority interests in the group.

Where a subsidiary has issued participating preference shares in which minority shareholders are interested, the reserves of this subsidiary may be allocated on the basis of the total reserves being

appropriated as dividend. The particular rights attaching to such shares may preferably be mentioned by note in the consolidated balance sheet and profit and loss account.

Share Capital and Reserves.—The share capital of the companies in a group consists of three parts which are respectively subscribed by members of the holding company, by outside members of subsidiaries and by companies within the group. The amount subscribed by companies within the group, being the capital of subsidiaries which has been subscribed by the holding company and various subsidiaries, is eliminated in preparing the consolidated accounts. It is undesirable to show the share capital in the consolidated balance sheet as apportioned between members of the holding company and minority interests because it is then impossible to show conveniently the equity interests of members of the holding company. The usual procedure is to show only the capital of the holding company, exactly as in the holding company's own balance sheet, except in cases where the amount is reduced by the par value of any of its shares which are held by subsidiaries. The aggregate amount of any issued share capital of subsidiary companies which represents minority interests is included with the amount shown under an appropriate heading, such as, "minority interests in subsidiaries", as already mentioned.

The total amount of capital reserves of the constituent companies are shown in the consolidated balance sheet only to the extent of their relevance to the holding company, together with the group's proportion of the pre-acquisition revenue balances of the subsidiaries, unless these are used to reduce amounts shown for goodwill or cost of control. In addition, revenue reserves are shown which represent the revenue reserves of the holding company with, or minus, respectively, any favourable or unfavourable balance on its profit and loss account, together with the post-acquisition revenue reserves of the subsidiaries except those relevant to minority interests. The amounts of any revenue reserves of the holding company which are shown separately from those of its subsidiaries may be reconciled with those stated in the balance sheet of the holding company. The source of any material change in the consolidated reserves may be shown either in the consolidated profit and loss account or in the consolidated balance sheet, or in a statement of report attached.

When a subsidiary makes a scrip issue of shares to its holding company, the amount shown for investments in the holding company's balance sheet will be increased with a corresponding addition on the other side of the balance sheet under the heading of reserves. Practice varies, but normally it seems desirable to make this addition to capital reserves in order that the aggregate revenue reserves in the consolidated balance sheet will equal the amount available for dividends by the constituent companies in the group through the holding company.

Consideration has already been given to the question of setting aside amounts for future income tax and disclosing these in the balance sheet. If holding companies could prepare their consolidated accounts on the basis that amounts so set aside are provisions or deferred liabilities the need would not arise to make adjustments in order to recognize minority

interests, or to indicate that pre-acquisition reserves made by subsidiaries for this purpose are not available to the holding company for revenue purposes. However, in dealing with amounts set aside for future income tax as reserves in the consolidated balance sheet, apportionment of the amount disclosed is necessary in order that the amount appropriate to minority interests can be shown as such and not as a reserve, with a corresponding adjustment of the figures in the consolidated profit and loss account.

Subsidiaries Incorporated Abroad.—In normal times, the amounts shown in the accounts in respect of subsidiaries incorporated abroad are included by converting the appropriate currency into sterling as follows :

- (1) Current assets and liabilities, at the rate ruling at the date of the balance sheet.
- (2) Fixed assets and liabilities, at the rate current when control was acquired or when assets are subsequently purchased.
- (3) Profit and loss account, at the average rate of the accounting period.
- (4) Remittances, at cost or at realized sterling value.
- (5) Any difference on conversion is placed to a " difference on exchange account " and, if a loss, it is written off to the profit and loss account, or, if a profit, it is brought into the credit of the profit and loss account, or transferred to an " exchange reserve account " as a buffer against future possible losses.

Exchange restrictions or fluctuations may have an important bearing as to whether the accounts of an overseas subsidiary should be consolidated with those of its holding company, for the existence of liquid assets abroad does not necessarily indicate that they can be used by the holding company. It is desirable to exclude from consolidation the accounts of any subsidiary where exchange restrictions make it impracticable for the subsidiary to remit a reasonable portion of its earnings to the holding company, or to effect payment to the group for current services or supplies. When a group operates mainly abroad the preparation of consolidated accounts with adequate explanatory notes may be preferable.

Exchange fluctuations may also necessitate modification of the general practices mentioned in connection with the preparation of consolidated accounts. For example, certain leading companies with extensive overseas interests, in valuing the fixed assets of their overseas subsidiaries, have adopted for the purpose of conversion the rates of exchange current at the date of the balance sheet, in line with the practice in respect of current assets which, to a large extent and for all practical purposes, also form part of the capital permanently employed in overseas subsidiaries. A note is required in the balance sheet of the basis on which foreign currencies have been converted into sterling, where the amount of the assets or liabilities affected is material.

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